

Planning for Greensboro's Future:
Annual Compilation of
City and Regional Data

**City of Greensboro
*CITY DATA BOOK***

August, 2001



First Issue
Prepared by City of Greensboro Planning Department

Greensboro City Data Book

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This book represents the efforts of all City Departments coming together to supply information specific to their department. The following is a list of individuals who contributed information and technical skills to make this document possible:

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Acknowledgements must also be given to the following for their expertise on issues not directly related to the City: Clyde Harding, Environmental Specialist with Guilford County Planning and Community Development Department; Bill Tillman, State Demographer with the Office of State Planning; Eric Hoekstra, Demographer/Facilities Planner with the Guilford County Schools System; Sharon Puryear for her editing assistance; and the City Graphic Services Division for their assistance in printing this document. Again this project spanned many months, many departments and many individuals and we apologize for any names that have been mistakenly left out.

PREFACE

The Greensboro City Data Book represents a comprehensive review of physical, social, cultural, and economic trends. The book provides an overview of current conditions and the sources from which the data were derived.

Some data from the 2000 Census are included in this 2001 edition of the Greensboro City Data Book. However, much of the Census data was released at a date that prohibited its inclusion in the Data Book, due to time constraints. The 2002 edition of the Data Book will include 2000 Census data released in 2001.

The Data Book will be updated annually. Subsequent updates will be used in a number of ways. These updates will track the selected key indicators and trends found in chapter 1 and identify emerging key indicators and trends. The updates will also help to assess the current quality of life of Greensboro residents. Finally, subsequent issues of the Data Book will continue to compare the City to current and new state and national standards.

Five North Carolina cities were selected as areas against which to compare and contrast Greensboro's characteristics. North Carolina comparison cities include Charlotte, Winston-Salem, High Point, Durham, and Raleigh. Three cities outside of North Carolina were chosen as well. These out-of-state cities are Montgomery, Alabama, Knoxville, Tennessee, and Greenville, South Carolina. These selections were based upon relative size and socioeconomic characteristics. Many were also previously used in various other studies conducted for City of Greensboro.

The Data Book begins with an overall executive summary and is followed by a chapter on key trends and indicators for the City of Greensboro. These trends and indicators were also chosen because of their importance and impact on the future growth and development of Greensboro. The indicators are followed by chapters on: the Triad region, demographics, the economy, zoning, commercial and residential development, the environment, water and sewer, transportation, solid waste, police, fire, schools, libraries, parks and recreation, financial conditions, capital improvements, and a glossary. Tables, figures, and maps assist in examination of relevant data.

At the same time this first issue of the Greensboro City Data Book was being compiled, seven "visioning" sessions were held around the City to gather citizens' ideas of how they imagined Greensboro should appear in the future. The comments gathered from the visioning sessions and the contents in the Data Book will serve as guides in developing the Comprehensive Plan.

The Greensboro City Data Book can be found on the City's Website under Comprehensive Plan at <http://www.ci.greensboro.nc.us/>. Your comments and ideas regarding the Data Book are welcomed. Please call the Greensboro Planning Department at 336-373-2144 to speak with Art Davis or Amy Avers. Or you may send your questions and comments via e-mail to art.davis@ci.greensboro.nc.us or amy.avers@ci.greensboro.nc.us.

Chapter 1

Key Trends and Indicators

KEY TRENDS AND INDICATORS

This chapter is a summary of the Greensboro City Data Book, with selected trends and indicators chosen from other chapters in the Book because of their importance in directly effecting the future growth and development of Greensboro. It is hoped that these major issues will provide glimpse into the City and its place within the Triad region, from population to finances.

The criteria for selecting a trend or an indicator to be monitored are that:

- the analysis of pertinent data result in change rates that can be tracked over time;
- the indicator or trend influences various policies;
- the indicator or trend can be measured against state and national data or regulatory standards; and/or
- the indicator or trend is a regional force that can impact Greensboro's future over the next 20 years.

The key indicators and trends chosen for inclusion in the first issue of the Greensboro Data Book simply provide a starting point from which further assessment and analysis may be meaningful and useful to the ongoing review and revision of the City's Comprehensive Plan. These indicators will be followed, with a few potential alterations, throughout the coming years in order to examine trends that are impacting the City.

List of Key Trends and Indicators

- Population Growth Rate in Piedmont Triad Region;
- Employment Growth in Triad Regional Counties;
- Triad Regional Retail Sales;
- Greensboro Annual Population Growth;
- Per Capita Income by Selected Areas;
- Guilford County Unemployment Rate;
- Guilford County Employment by Sector;
- Average Sales Prices of Homes by Zip Code in Guilford County;
- Triad Regional Ozone Exceedances;
- Peak Water Capacity and Demand for Greensboro Service Area;
- Sewer Capacity and Demand for Greensboro Service Area;
- PTIA, Average Number of Flights Per Day;

- Greensboro Transit Ridership;
- White Street Landfill: Landfilled and Managed Waste,
- Crime Statistics for Selected Municipalities;
- Greensboro Annual Fire Department Statistics;
- Guilford County School Enrollment and Projections;
- Guilford County Parks & Open Space* Inventory Summary; and
- Standard & Poor's and Moody's Ratings.

KEY TRENDS

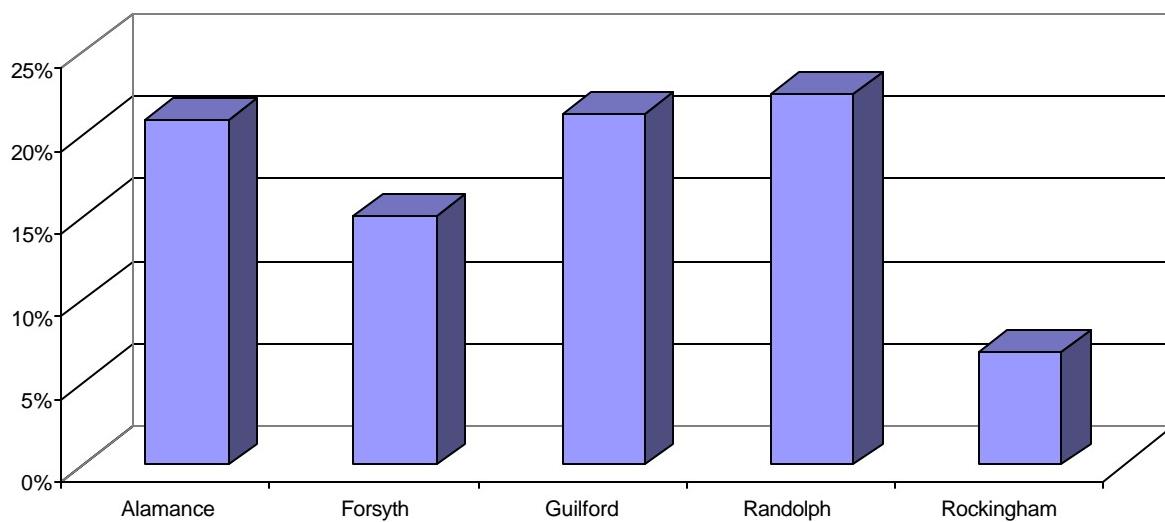
Population Growth Rate in the Piedmont Triad Region

- Randolph County had the highest population growth rate (22.4 percent) of all Triad regional counties during the 1990s, while Rockingham experienced the lowest (6.8 percent). The population growth rates in Alamance and Forsyth Counties were lower than Guilford County's rate of 21.2 percent.

Triad Regional Population Growth, 1970-2000					
Municipality	1970	1980	1990	2000	Percent Change, 1990-2000
Burlington	35,930	37,266	39,498	44,917	13.7%
Greensboro	144,076	155,642	183,894	223,891	21.8%
High Point	63,229	63,380	69,428	85,839	23.6%
Winston-Salem	133,683	131,885	143,485	185,776	29.5%
County					
Alamance	96,502	99,319	108,213	130,800	20.9%
Forsyth	215,118	243,683	265,878	306,067	15.1%
Guilford	288,645	317,154	347,420	421,048	21.2%
Randolph	76,358	93,000	106,546	130,454	22.4%
Rockingham	72,402	83,426	86,064	91,928	6.8%
County Regional Totals	749,025	836,582	914,121	1,080,297	18.2%

Source: US Census Bureau, Census of Population & Housing, 1970-2000.

Triad Regional Population Growth, Percent Change in Counties from 1990-2000



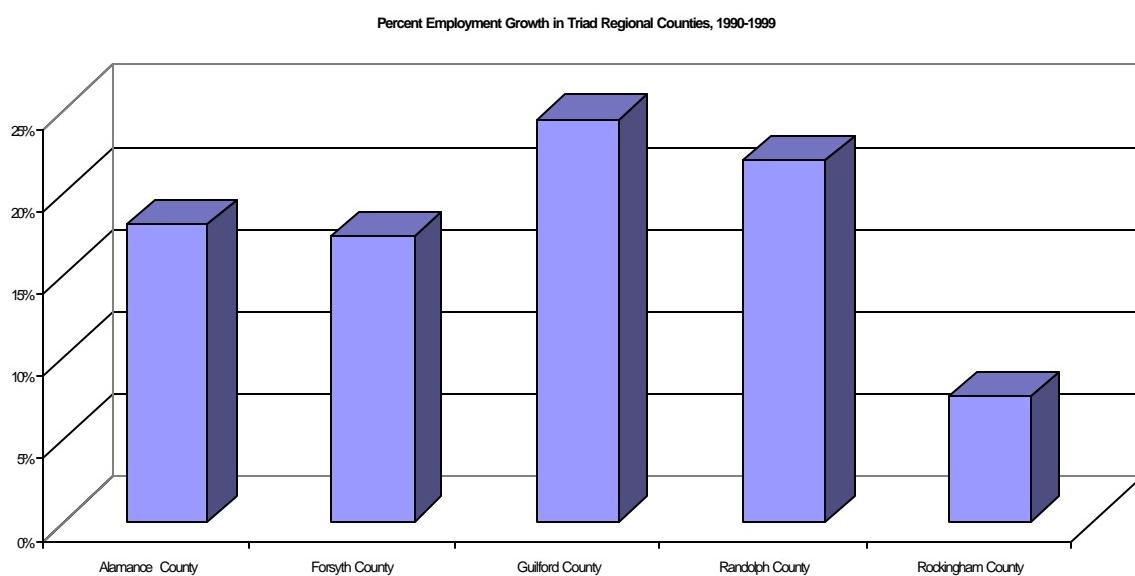
Source: US Census Bureau, Population & Housing, 1970-2000.

Employment Growth Rate in the Piedmont Triad Region

- Between 1990 and 1999, employment growth numbers among Triad regional counties has been strongest in Guilford and Forsyth Counties, while Randolph County's percentage of the employment growth over the period has been second only to Guilford County.

Employment Growth in Triad Regional Counties, 1990-1999				
	1990	1999	Growth	Percent Growth
Alamance County	54,081	63,862	9,781	18.1%
Forsyth County	151,590	177,833	26,243	17.3%
Guilford County	225,208	280,197	54,989	24.4%
Randolph County	40,890	49,834	8,944	21.9%
Rockingham County	31,584	33,956	2,372	7.5%
Regional Total	503,353	605,682	102,329	20.3%

Source: NCESC, Employment & Wages in NC, 1990 & 1999 Annual Editions.



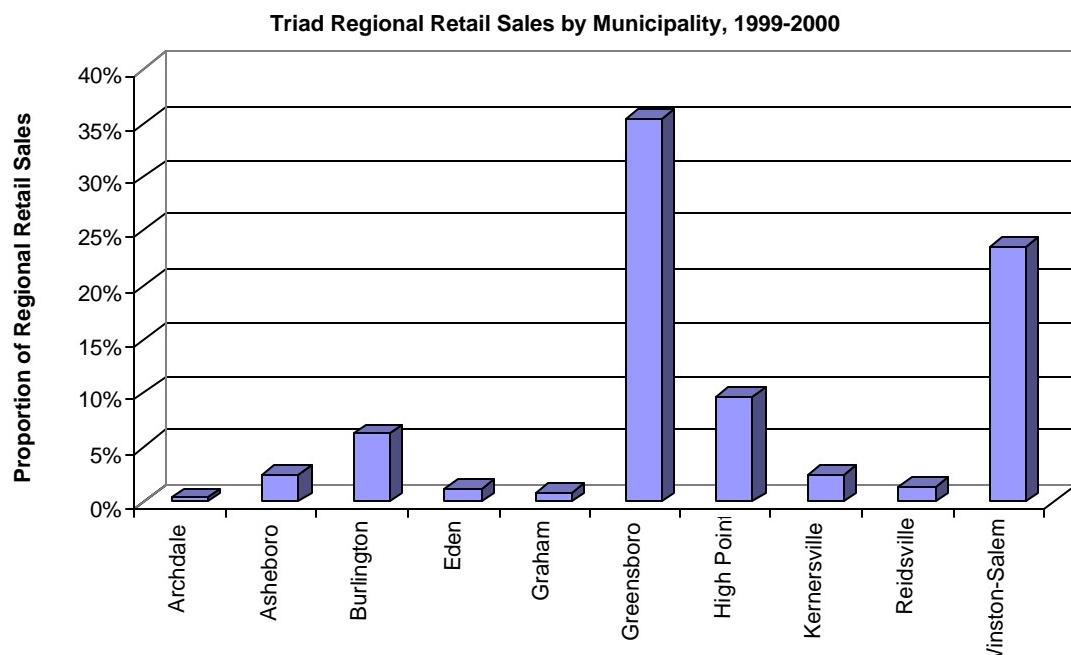
Source: NCESC, Employment & Wages in NC, 1990 & 1999 Annual Editions.

Greensboro's Percentage Share of Retail Sales in the Piedmont Triad

- The City of Greensboro accounted for over a third of all retail sales within the five-county Triad region for the period 1999-2000. Annual retail sales per capita in Greensboro were the highest among all other cities in the region at 35.4 percent. Winston-Salem followed at 23.5 percent. Among the regional counties, Guilford had the highest proportion of retail sales at 51.5 percent.

Triad Regional Retail Sales, 1999-2000				
Regional Municipalities*	Gross Retail Sales	Annual Retail Sales per Capita*	Proportion of the Population Within the Region	Proportion of Retail Sales within the Region
Archdale	72,643,082	\$8,076	0.9%	0.4%
Asheboro	467,190,404	\$23,905	1.9%	2.6%
Burlington	1,108,076,989	\$25,511	4.2%	6.2%
Eden	229,550,983	\$14,948	1.5%	1.3%
Graham	152,966,746	\$12,450	1.2%	0.9%
Greensboro	6,365,619,467	\$30,573	20.3%	35.4%
High Point	1,734,827,446	\$22,360	7.6%	9.7%
Kernersville	465,972,755	\$29,445	1.5%	2.6%
Reidsville	250,478,550	\$17,460	1.4%	1.4%
Winston-Salem	4,219,136,972	\$24,308	16.9%	23.5%
Regional Counties				
Alamance	1,620,577,735	\$13,065	12.10%	9.0%
Forsyth	5,315,588,103	\$18,214	28.46%	29.6%
Guilford	9,243,741,011	\$23,496	38.37%	51.5%
Randolph	1,044,671,046	\$8,270	12.32%	5.8%
Rockingham	733,567,773	\$8,174	8.75%	4.1%
Regional Totals	17,958,145,668	\$17,514	100.0%	100.0%

Source: NC Dept. of Revenue, State Sales & Use Tax Reports, July 1999-June 2000. *Total gross retail sales divided by population. **Only towns of 10,000+ people.



Source: NC Dept. of Revenue, State Sales & Use Tax Reports, July 1999-June 2000. *Total gross retail sales divided by population. **Only towns of 10,000+ people.

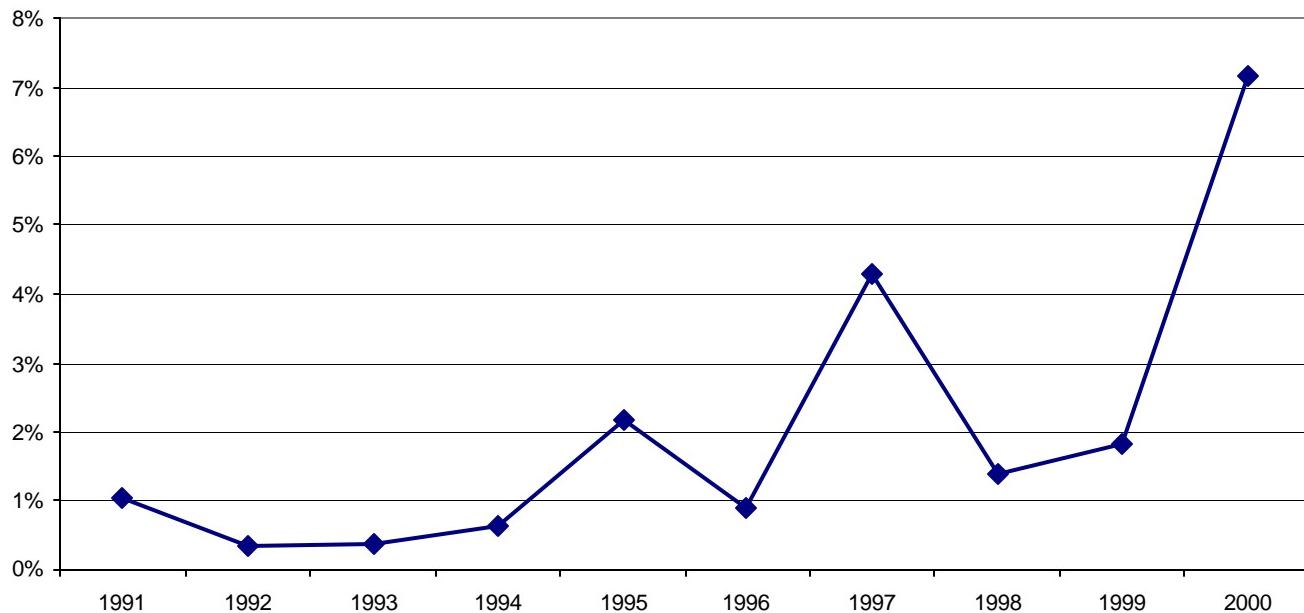
Greensboro Population Growth

- Between 1990 and 2000, the population of the City of Greensboro grew from 183,894 to 223,891 people. According to the Greensboro Planning Department and the United States Census Bureau, Greensboro's population increased annually from 1990 to 2000. In 1995, there was a population increase of an estimated 2.2 percent and in 1997, there was an estimated 4.3 percent rise. In 2000, the population gained over 15,000 persons (7.2 percent). Much of Greensboro's population growth over the decade was the result of annexation (16,401 people).

Greensboro Annual Population Growth, 1990-2000			
Year	Number*	Number Change	Percent Annual Change
1990	183,894	NA	NA
1991	185,789	1,895	1.0%
1992	186,392	603	0.3%
1993	187,050	658	0.4%
1994	188,228	1,178	0.6%
1995	192,330	4,102	2.2%
1996	194,020	1,690	0.9%
1997	202,321	8,301	4.3%
1998	205,132	2,811	1.4%
1999	208,887	3,755	1.8%
2000	223,891	15,004	7.2%

Source: *Greensboro Planning Department estimates; 1990 population from 1990 Census of Population & Housing; 2000 population from 2000 Census of Population & Housing.

Greensboro Annual Percent Population Change, 1991-2000



Source: *Greensboro Planning Department estimates; 1990 population from 1990 Census of Population & Housing; 2000 population from 2000 Census of Population & Housing.

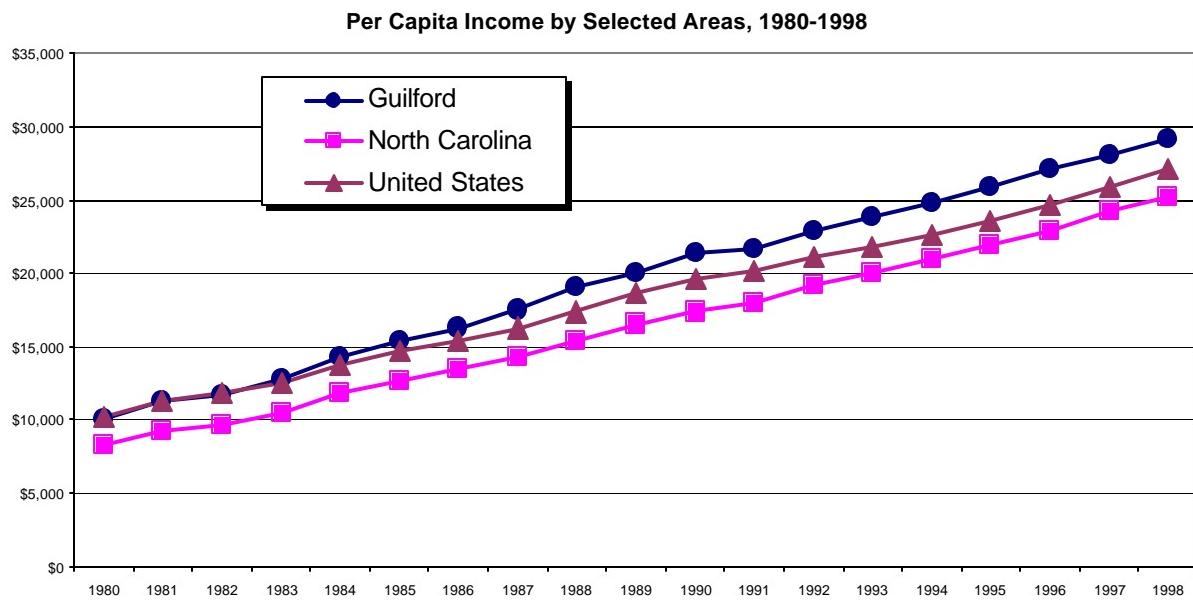
Per-Capita Income in Greensboro (Ratio of Total Income to Population)

- Guilford County's per-capita income, when compared to selected areas for 1998, was lower (\$29,229) than that of Forsyth (\$31,304), Mecklenburg (\$35,245), and Wake (\$33,780). Guilford County's per-capita income was higher than the remainder of the comparison areas of Alamance, Durham, Randolph, Rockingham, North Carolina, and the United States. Per-capita income will be the true measure of how the community endures this transition. Unemployment, median family income, wage raters, and population all influence per capita income.

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Year	Per Capita Income by Selected Areas, 1980-1998						Other Comparisons			
	Selected Comparison Counties									
Alamance	Durham	Forsyth	Guilford	Mecklenburg	Randolph	Rockingham	Wake	North Carolina	United States	
1980	\$8,792	\$9,663	\$10,521	\$10,121	\$10,455	\$7,996	\$8,348	\$10,468	\$8,247	\$10,183
1981	\$9,811	\$10,695	\$11,782	\$11,255	\$11,668	\$8,871	\$9,226	\$11,494	\$9,184	\$11,280
1982	\$10,372	\$11,549	\$12,445	\$11,778	\$12,355	\$9,425	\$9,624	\$12,407	\$9,690	\$11,901
1983	\$11,181	\$12,478	\$13,328	\$12,786	\$13,342	\$10,164	\$10,392	\$13,678	\$10,480	\$12,554
1984	\$12,381	\$14,018	\$14,872	\$14,396	\$15,003	\$11,249	\$11,323	\$15,429	\$11,788	\$13,824
1985	\$13,161	\$15,404	\$16,075	\$15,401	\$16,430	\$12,182	\$11,880	\$17,058	\$12,649	\$14,705
1986	\$14,113	\$16,072	\$16,983	\$16,266	\$17,483	\$13,168	\$12,312	\$18,089	\$13,444	\$15,397
1987	\$14,831	\$16,959	\$18,281	\$17,544	\$18,941	\$13,744	\$13,219	\$19,305	\$14,325	\$16,284
1988	\$15,902	\$18,262	\$20,072	\$19,028	\$20,500	\$14,729	\$14,013	\$20,601	\$15,461	\$17,403
1989	\$17,048	\$19,543	\$21,397	\$20,033	\$21,604	\$15,596	\$14,885	\$21,874	\$16,539	\$18,566
1990	\$17,574	\$20,272	\$22,218	\$21,302	\$23,297	\$15,987	\$15,521	\$22,488	\$17,367	\$19,584
1991	\$18,002	\$20,872	\$22,574	\$21,568	\$23,526	\$16,161	\$16,191	\$23,102	\$17,879	\$20,089
1992	\$18,903	\$22,626	\$23,806	\$22,812	\$25,128	\$17,464	\$16,801	\$24,521	\$19,120	\$21,082
1993	\$19,891	\$23,383	\$24,759	\$23,835	\$26,438	\$18,495	\$17,710	\$25,691	\$20,042	\$21,718
1994	\$20,839	\$23,964	\$25,569	\$24,797	\$27,888	\$19,533	\$18,465	\$26,686	\$20,931	\$22,581
1995	\$21,942	\$24,980	\$27,212	\$25,916	\$29,685	\$20,182	\$19,010	\$27,996	\$21,938	\$23,562
1996	\$22,755	\$26,154	\$28,243	\$27,212	\$31,363	\$20,897	\$19,498	\$29,332	\$22,940	\$24,651
1997	\$23,960	\$27,770	\$29,465	\$28,160	\$32,988	\$21,721	\$20,374	\$31,792	\$24,210	\$25,924
1998	\$24,836	\$28,492	\$31,304	\$29,229	\$35,245	\$22,622	\$20,866	\$33,780	\$25,181	\$27,203

Source: US Bureau of Economic Analysis, Regional Economic Information System, release date May, 2000.



Source: US Bureau of Economic Analysis, Regional Economic Information System, release date May, 2000.

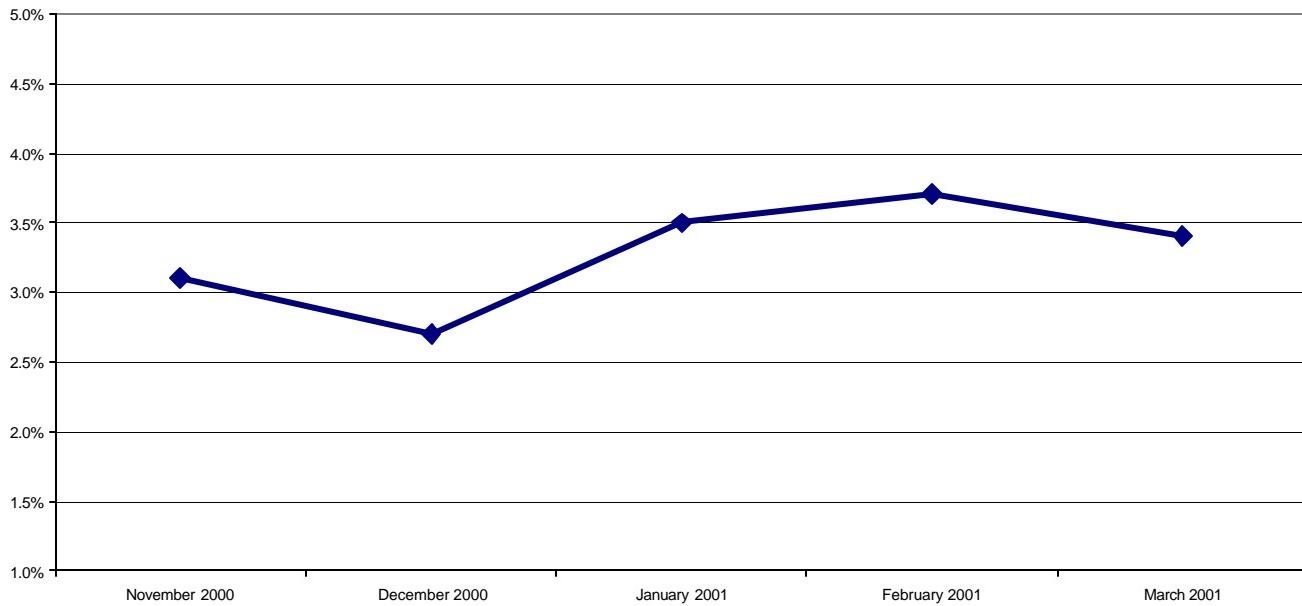
Unemployment Rate in Greensboro (Percent of Unemployment in the Civilian Work Force)

- Geographically, 1990 unemployment rates were greatest in census tracts located in Southeast Greensboro. Average annual unemployment rates for Greensboro decreased between 1995 and 1999, from 3.8 percent to 2.5 percent. However, more recent data revealed that unemployment in Guilford County went from 3.1 percent in November 2000 to 3.6 percent in April 2001.

Guilford County Unemployment Rate, November 2000-April 2001	
Date	Unemployment Rate
November 2000	3.1%
December 2000	2.7%
January 2001	3.5%
February 2001	3.7%
March 2001	3.4%
April 2001	3.6%

Source: NCESC, NC Local Area Unemployment Statistics, October 2000-March 2001.

Guilford County Unemployment Rate, October 2000-March 2001



Source: NCESC, NC Local Area Unemployment Statistics, October 2000-March 2001.

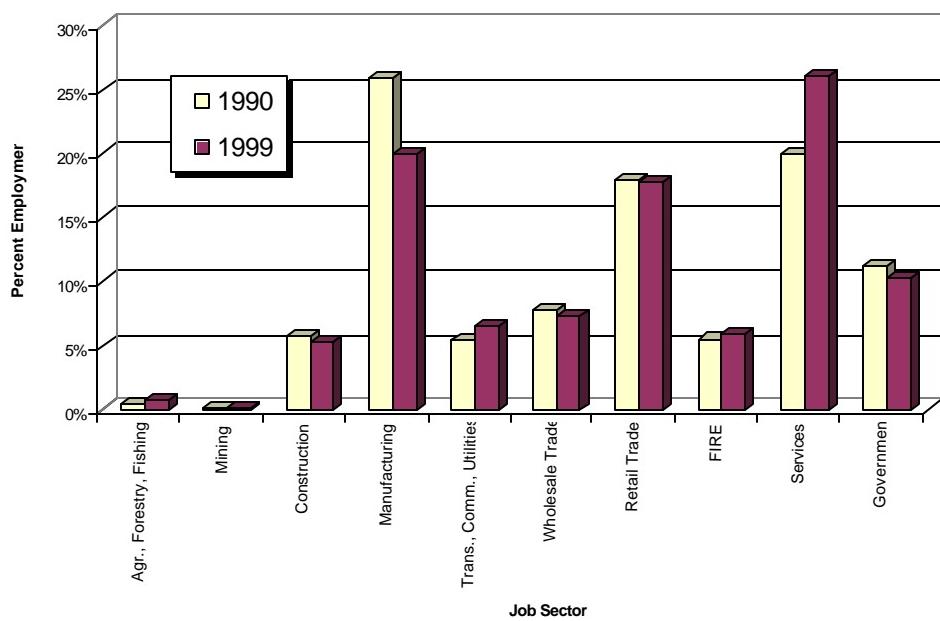
Guilford County Employment Growth by Sector

- For the period 1990-1999, the service sector has replaced the manufacturing sector as the largest employer in Guilford County. In 1999, the service sector constituted 26.1 percent of the County's employment, up from its previous 19.9 percent share, while manufacturing declined from 26 percent to 19.9 percent.

Guilford County Employment by Sector, 1990-1999				
Sector	1990 Employment		1999 Employment	
	Number	Percent	Number	Percent
Agriculture, Forestry, Fishing	1,006	0.4%	2,040	0.7%
Mining	126	0.1%	202	0.1%
Construction	12,969	5.8%	14,888	5.4%
Manufacturing	58,507	26.0%	55,398	19.9%
Transportation, Communications, Utilities	12,269	5.4%	18,330	6.6%
Wholesale Trade	17,557	7.8%	20,312	7.3%
Retail Trade	40,513	18.0%	49,313	17.8%
Finance, Insurance, Real Estate (FIRE)	12,479	5.5%	16,334	5.9%
Services	44,802	19.9%	72,403	26.1%
Government	24,980	11.1%	28,506	10.3%

Source: NCESC, Employment & Wages in NC, 1990-1999.

Guilford County Employment by Sector, 1990-1999



Source: Employment Security Commission of NC, Employment & Wages in NC, 1990-1999.

Average Sales Price of Single Family Housing Units in the Greensboro Regional Market Area

- In Greensboro, zip code 27405 in the Northeast had the lowest sales price of homes in 2000 (\$93,874). However, when compared countywide, zip code 27260 in High Point had the lowest average sales price (\$58,648). The Lake Jeanette area (27455) had the highest average sales prices within Greensboro (\$216,257), as compared to the highest average sales price in Northwest Guilford County, which was Oak Ridge (\$261,678), zip code 27310.

Average Sales Prices of Homes by Zip Code in Guilford County*, 2000		
Zip Code	Community	Price
27214	Browns Summit	\$151,591
27260	High Point	\$58,648
27262	High Point	\$119,633
27263	High Point / Archdale	\$89,116
27265	High Point	\$146,044
27282	Jamestown	\$177,098
27301	McLeansville	\$152,078
27310	Oak Ridge	\$261,678
27313	Pleasant Garden	\$149,477
27357	Stokesdale	\$190,262
27358	Summerfield	\$248,746
27377	Whitsett	\$249,380
27401	Greensboro	\$101,773
27403	Greensboro	\$135,771
27405	Greensboro	\$93,874
27406	Greensboro	\$116,602
27407	Greensboro	\$157,243
27408	Greensboro	\$211,498
27409	Greensboro	\$150,423
27410	Greensboro	\$210,079
27455	Greensboro	\$216,257

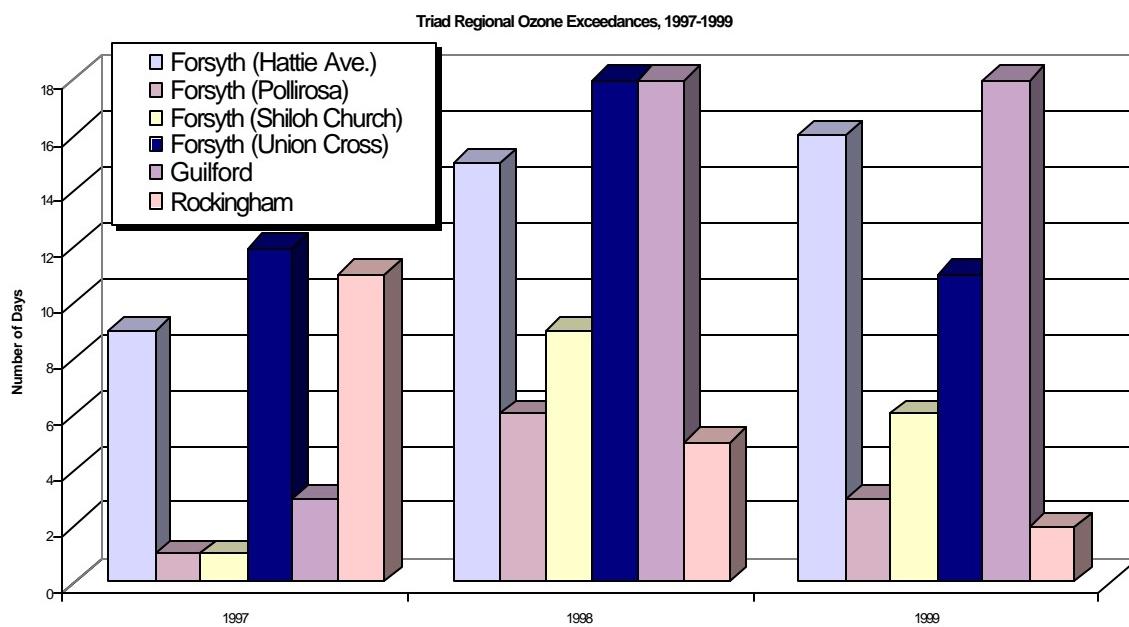
Source: Greensboro Regional Realtors Association, 2000. *Zip codes with 25 or more home sales Jan 1, 2000-Sept 30, 2000. Average sales price for all homes in Guilford County=\$165,350.

Annual Regional Ozone Exceedances Based Upon Federal Standards

- Ozone measurements are taken between April and October every year. In 2000, the Triad listed more than 30 "code orange" ozone days. From 1998 through 2000, the month with the highest number of exceedances in the Triad region was August, generally the hottest month of the year.

Triad Regional Ozone Exceedances, 1997-1999			
Site	County	Year	Annual Exceedances
Hattie Ave.	Forsyth	1997	9
		1998	15
		1999	16
		1997	1
Pollirosa	Forsyth	1998	6
		1999	3
		1997	1
		1998	9
Shiloh Church	Forsyth	1999	6
		1997	12
		1998	18
		1999	11
Union Cross	Forsyth	1997	3
		1998	18
		1999	18
		1997	11
McLeansville	Guilford	1998	5
		1999	2
		1997	11
		1998	18
Bethany	Rockingham	1999	2
		1997	12
		1998	18
		1999	11

Source: NC Dept. of Environment & Natural Resources, Div. of Air Quality, 2000.



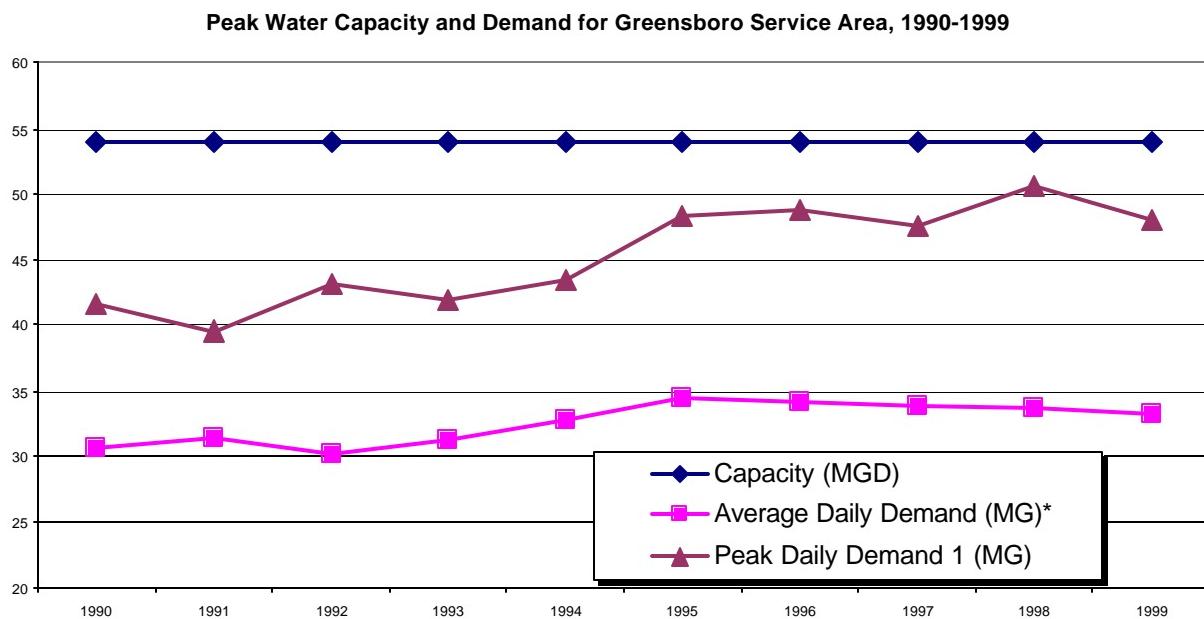
Source: NC Dept. of Environment & Natural Resources, Div. of Air Quality, 2000.

Annual Ratio of Water Demand (Daily Average) to Capacity for the Greensboro Service Area

- Average daily demand for water between 1990 and 1999 has been 32.55 mgd. The 30-year safe yield is 36 mgd. Peak daily demand for the period ranged from a high in 1998 of 50.65 to a low of 39.50 in 1991.

Peak Water Capacity and Demand for Greensboro Service Area, 1990-1999			
Year	Capacity (MGD)	Average Daily Demand (MG)*	Peak Daily Demand 1 (MG)
1990	54	30.55	41.51
1991	54	31.34	39.50
1992	54	30.14	43.11
1993	54	31.27	41.80
1994	54	32.74	43.42
1995	54	34.46	48.31
1996	54	34.21	48.80
1997	54	33.88	47.58
1998	54	33.72	50.65
1999	54	33.19	48.02
Average	N/A	32.55	45.27

Source: Greensboro Water Resources Dept., 2000. *Based on Calendar Year Pumpage Report for treated water.



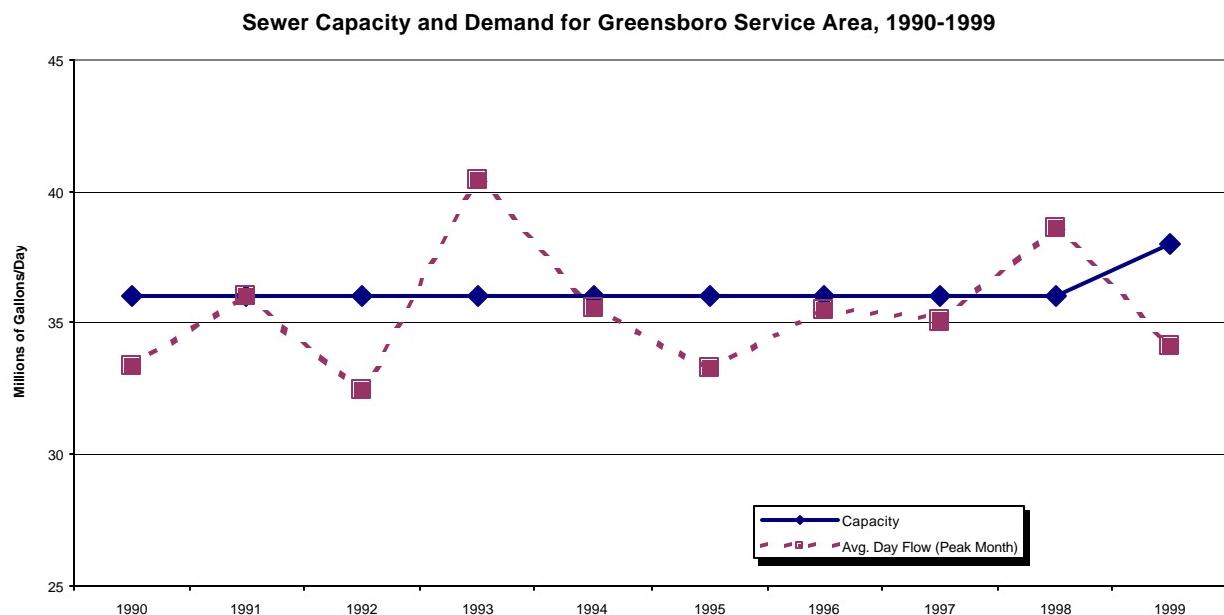
Source: Greensboro Water Resources Dept., 2000. *Based on Calendar Year Pumpage Report for treated water.

Annual Ratio of Waste Water Demand (Daily Average) to Capacity for the Greensboro Service Area

- Capacity for sewer service has increased 2 mg since 1998 to 38 mg. Sewer allocation increased to 40 mgd capacity in 2000, will increase to 46 mgd capacity in 2001, and 56 mgd for 2003.

Sewer Capacity and Demand for Greensboro Service Area, 1990-1999			
Year	Capacity (MG)	High Flow Month	Avg. Day Flow for Peak Month (MGD)
1990	36	May	33.35
1991	36	Apr	36.03
1992	36	Apr	32.43
1993	36	Apr	40.44
1994	36	Mar	35.54
1995	36	Mar	33.32
1996	36	Jan	35.44
1997	36	Mar	35.10
1998	36	Jan	38.65
1999	38	Sep	34.18

Source: Greensboro Water Resources Dept., 2000.
 Note: Sewer allocation increased to 40 MG Capacity for 2000. It will increase to 46 MG Capacity for 2001 & 56 MG for 2003.



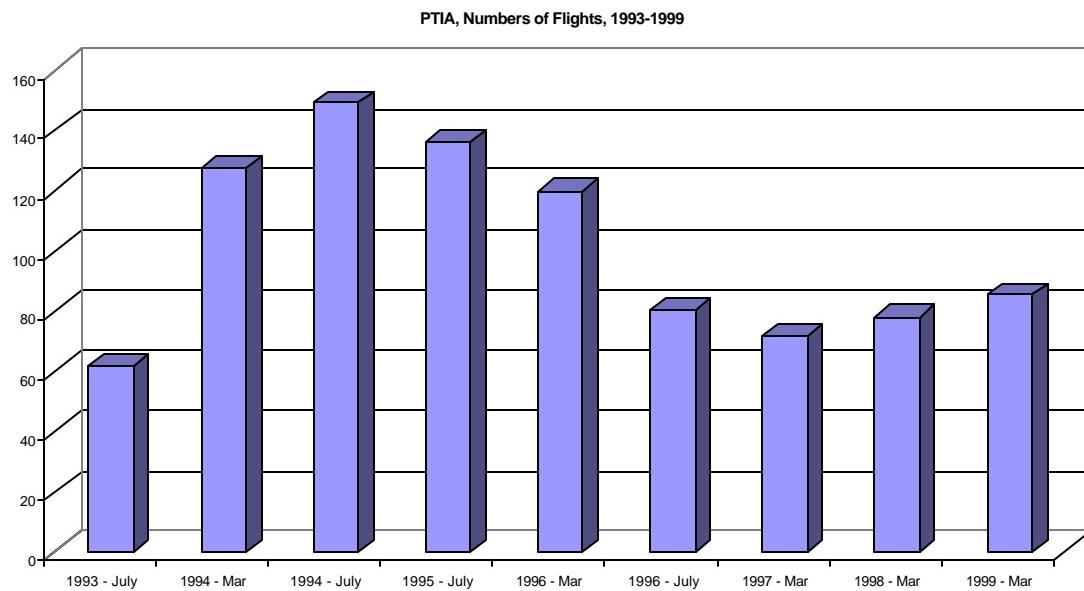
Source: Greensboro Water Resources Dept., 2000. Note: Sewer allocation increased to 40 MG Capacity for 2000. It will increase to 46 MG Capacity for 2001 & 56 MG for 2003.

Average Commercial Airline Daily Flights at the Piedmont Triad International Airport

- The average number of flights per day at the Piedmont Triad International Airport began with 62 in 1993, increased steadily to the peak year of 1994 (149), and has averaged 79 flights per day between 1996 and 1999. The diminishing number of flights was caused mainly by the loss of the hubs of various airlines including Continental, Tradewinds and Eastwinds.

PTIA, Average Number of Flights Per Day, 1993-1999	
Date	Average Flights
1993 - July	62
1994 - Mar	127
1994 - July	149
1995 - July	136
1996 - Mar	120
1996 - July	80
1997 - Mar	72
1998 - Mar	78
1999 - Mar	85

Source: Piedmont Triad Council of Governments, 2001.



Source: Piedmont Triad Council of Governments, 2001.

Annual Public Transit Ridership for Greensboro

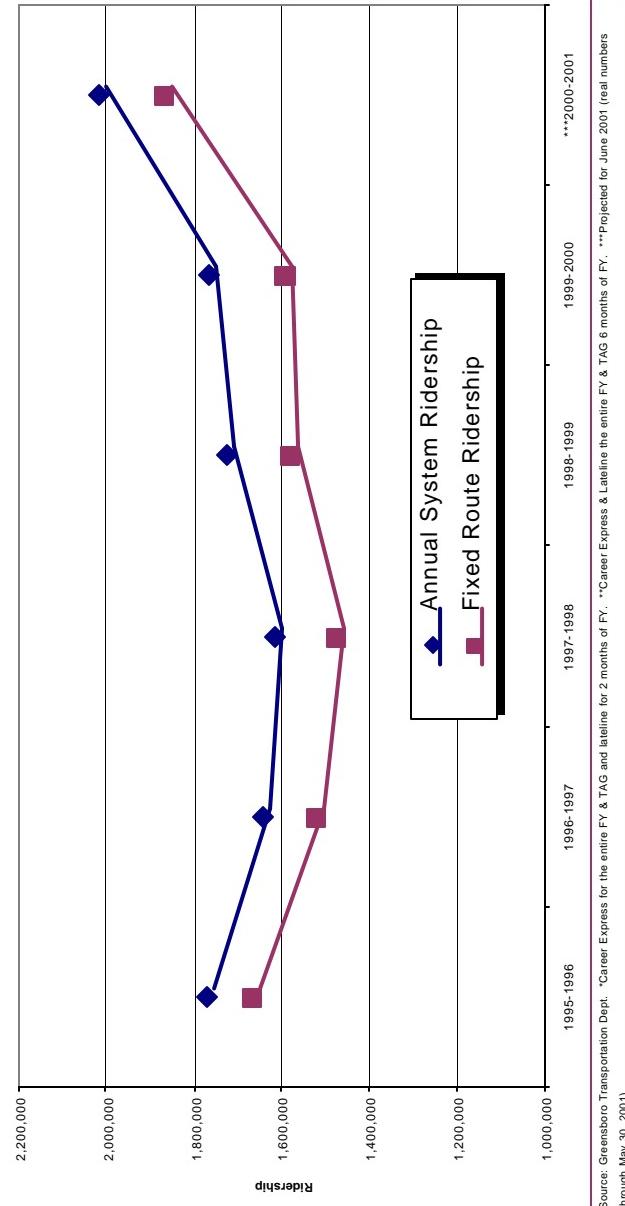
- Between FY 1995-96 and FY 2000-01, ridership on the Greensboro Transit System increased from 1,769,943 to 2,021,074 (14.2 percent). Fixed Route ridership also increased, from 1,666,811 to 1,865,878 (11.9 percent).

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Greensboro Transit Ridership, 1997-2001						
Type	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	****2000-2001
Annual System Ridership	1,769,943	1,641,525	1,613,413	1,723,079	1,763,906	2,021,074
Fixed Route Hours	70,297	67,932	62,404	63,886	68,387	94,927
Fixed Route Ridership	1,666,811	1,519,958	1,474,339	1,577,975	1,588,762	1,865,878
Fixed Route Riders per Hour	23.71	22.37	23.62	24.69	23.23	19.66
Flex Route Hours	NA	NA	*4,635	**14,546	12,975	7,560
Flex Route Ridership	NA	NA	*15,710	**65,185	96,474	60,608
Flex Route Riders per Hour	NA	NA	*3.40	**4.48	7.44	8.02
Demand Response Hours (SCAT)	36,263	36,392	39,871	26,804	30,715	36,484
Demand Response Ridership (SCAT)	103,132	121,567	123,364	79,919	78,670	94,588
Demand Response Riders per Hour (SCAT)	2.84	3.34	3.09	2.98	2.56	2.59

Source: Greensboro Transit Dept., 2000. *Career Express for the entire FY & TAG & lateline for 2 months of FY. **Projected for June 2001 (real numbers through May 30, 2001). ***Projected for June 2001 (real numbers through May 30, 2001).

Greensboro Transit Ridership, 1997-2001



Source: Greensboro Transportation Dept. *Career Express for the entire FY & TAG and lateline for 2 months of FY. **Projected for June 2001 (real numbers through May 30, 2001).

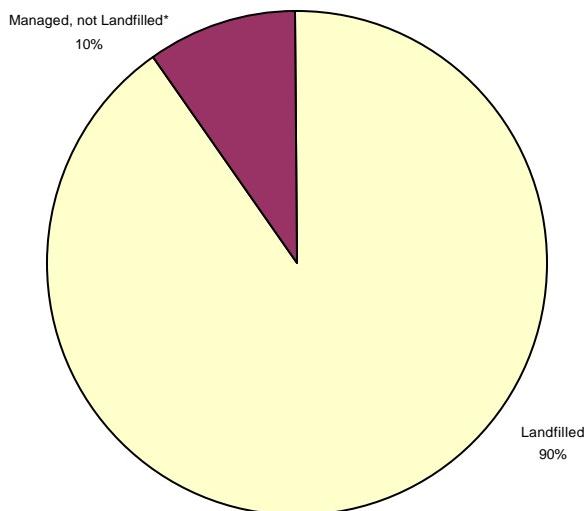
Annual Increase in the Amount of Solid Waste Tonnage Being Managed or Recycled

- Managed waste tonnage between FY 1997-1998 and FY 1999-2000 increased 14.4 percent overall. Recycled waste was up 25.2 percent, yard waste was up 4.5 percent, but there was a decrease in white goods of 8.9 percent.

White Street Landfill: Landfilled and Managed Waste 1997-1998 to 1999-2000						
Waste Type	Waste Quantity in Tons (Public and Private)					
	1997-98	Percent	1998-99	Percent	1999-00	Percent
Landfilled						
Municipal Solid Waste	261,027	58.3%	250,375	56.5%	275,061	45.2%
Construction & Demolition Waste	29,319	6.6%	45,292	10.2%	140,184	23.0%
Land Clearing & Inert Debris	105,228	23.5%	89,517	20.2%	134,317	22.1%
Subtotal	395,574	88.4%	385,184	86.9%	549,562	90.3%
Managed, not Landfilled*						
Recycled	25,188	5.6%	27,746	6.3%	31,538	5.2%
Yardwaste	25,845	5.8%	29,604	6.7%	27,001	4.4%
White Goods	741	0.2%	652	0.1%	675	0.1%
Subtotal	51,774	11.6%	58,002	13.1%	59,214	9.7%
TOTAL	447,348	100.0%	443,186	100.0%	608,776	100.0%

Source: City of Greensboro Solid Waste Annual Report, June 30, 1999 and June 30, 2000. *Collected by the City of Greensboro, but not disposed of at the White Street Landfill.

White Street Landfill, Landfilled vs. Managed Waste, 1997-2000



Source: City of Greensboro Solid Waste Annual Report, June 30, 1999 and June 30, 2000. *Collected by the City of Greensboro, but not disposed of at the White Street Landfill.

Greensboro Total Index Crimes Compared to North Carolina and Out-of-State Cities

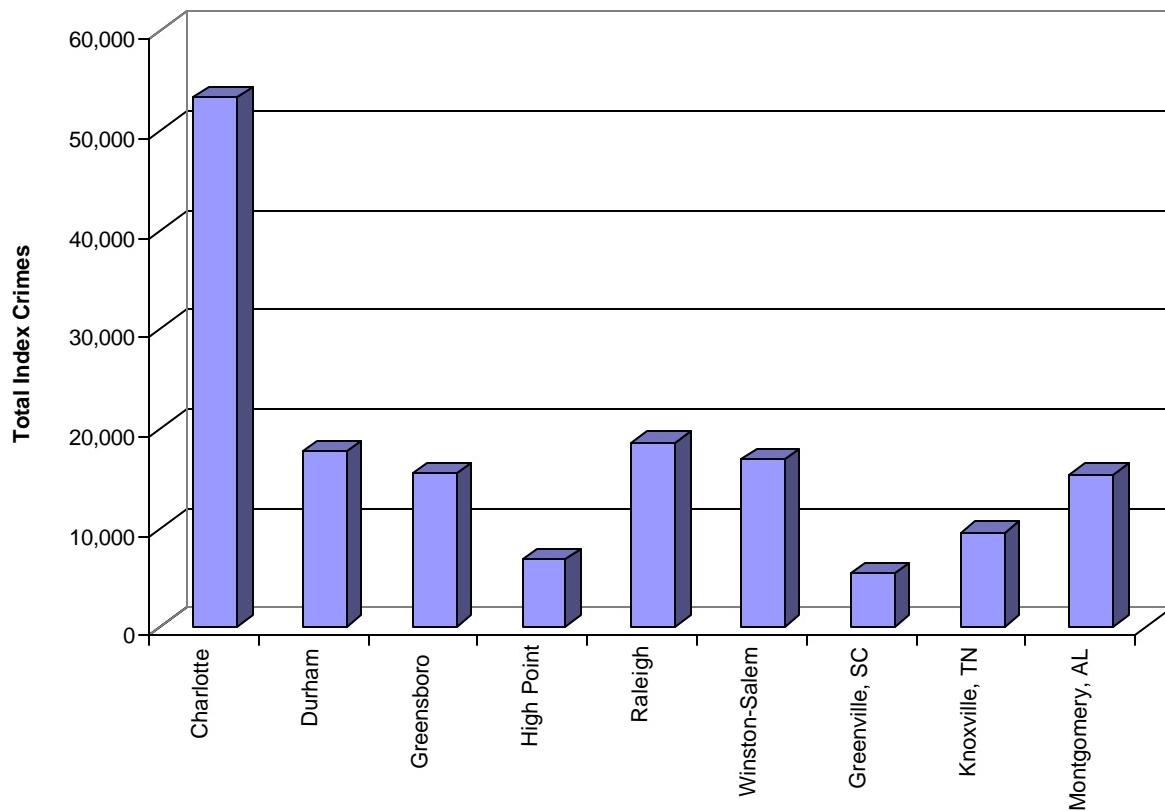
- The Uniform Crime Reports in 1999 indicated that Charlotte led in number of total index crimes at 53,413 (8,138 violent crimes and 45,275 property crimes), while Greensboro ranked fifth as compared to North Carolina cities and nearly equaled total crimes in Montgomery, AL.

In 1999, Charlotte led in the number of total index crimes at 53,413 (8,138 violent crimes and 45,275 property crimes), while Greensboro ranked fifth as compared to North Carolina cities and nearly equaled total crimes in Montgomery, AL.

Crime Statistics for Selected Municipalities, 1999						
	NC Municipalities				Out-of-State Municipalities	
Incidents	Charlotte	Durham	Greensboro	High Point	Raleigh	Winston-Salem
Violent Crimes						
Homicide	84	14	20	4	16	17
Rape	262	80	130	37	92	112
Robbery	2,517	1,103	758	261	736	634
Aggravated Assault	5,275	816	938	514	1,189	1,450
Total Violent Crimes	8,138	2,013	1,846	816	2,033	2,213
Property Crimes						
Burglary	10,314	4,144	3,197	1,636	3,465	3,638
Larceny	30,116	9,895	9,184	3,886	11,864	9,921
Auto Theft	4,845	1,654	1,298	417	1,336	1,122
Total Property Crimes	45,275	15,693	13,679	5,939	16,665	14,681
Total Index Crimes	53,413	17,706	15,525	6,755	18,698	16,894

Source: Greensboro Police Dept., 2000, & Alabama Criminal Justice Information Center, Crime in AL, 2000.

Crime Statistics for Selected Municipalities, 1999



Source: Greensboro Police Dept., 2000, & Alabama Criminal Justice Information

Average Annual Increase in Response Time for Emergency Fire Calls

- Between 1998 and 1999, average response time per call increased from 3.7 minutes to 5.29 minutes, a 43 percent increase. This dramatic increase is due mainly to the required change in calculating response times. Starting in 1999, response times were calculated from the time the incident was reported to the time the fire apparatus was on the scene. Prior to 1999, response times were calculated from time of dispatch to on the scene.

- From 1993-1999, average response time per call increased from 4.4 minutes to 5.29 minutes.

Greensboro Annual Fire Department Statistics, 1993-1999							
Type of Calls	1993	1994	1995	1996	1997	1998	1999
Total Emergency Responses	10,720	12,932	12,544	15,277	16,136	17,680	17,696
Population	187,050	188,228	192,330	194,020	202,321	205,132	208,887
Response Per 1000 Population	60	70	70	80	80	90	80
Response Time							*NA
Average Response Time/ Call (min)	4.4 From dispatch to onscene	4.19 From dispatch to onscene	3.84 From dispatch to onscene	3.70 From dispatch to onscene	3.70 From dispatch to onscene	5.29 From reported to onscene**	3.1%
Annual Change	NA -2%	NA -3%	NA -8%	NA -4%	NA 0%	**NA	3.1%
Average Response Time/ EMS Call (min)	5.17 From dispatch to onscene	3.90 From dispatch to onscene	3.84 From dispatch to onscene	3.82 From dispatch to onscene	3.82 From dispatch to onscene	5.11 From reported to onscene**	-0.2%
Annual Change	NA -20%	NA -5%	NA -2%	NA -1%	NA 0%	**NA	-0.2%
Inspections							
Primary Commercial Inspections	19,989	13,992	15,464	15,987	14,049	13,287	11,923
Re-Inspections	7,996	5,597	6,186	6,395	5,620	5,315	4,769
Plans Reviewed	1,054	1,093	987	1,179	1,276	1,450	1,521
Other Information							
Fire Loss	\$3,732,330	\$4,249,160	\$3,785,180	\$2,878,983	\$3,699,566	\$4,255,116	\$4,038,815
Yearly Change	NA 14%	NA -14%	NA -24%	***29%	15%	-5%	***15%
Hydrants	8,759	9,537	9,690	6,728	9,922	8,957	9,273
Hydrants/Sq. Mile	94	101	99	62	92	82	84

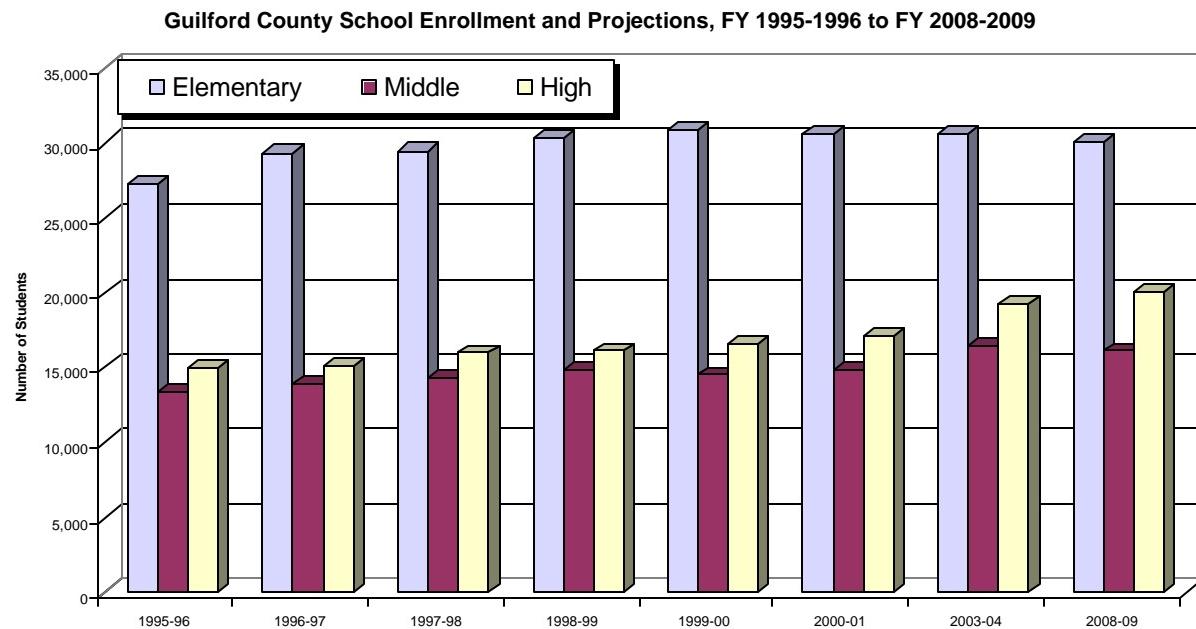
Source: Greensboro Fire Dept., 2000. *calculation is a ratio. **Reporting Standards were changed from "Dispatch Time" to "Reported Time". ***Increase is due to Tax ReEvaluation by the County in 1996.

Annual Guilford County School Enrollment

- The total Guilford County school enrollment increased from 61,860 in 1999-00 to 62,426 in 2000-01, an increase of slightly less than 1%.

Guilford County School Enrollment and Projections, FY 1995-1996 to FY 2008-2009							
School	Elementary Grades K-5		Middle Grades 6-8		High Grades 9-12		Special Needs Students
Year	No.	Admissions	No.	Admissions	No.	Admissions	Admissions
1995-96	59	27,268	17	13,292	14	14,922	193
1996-97	59	29,281	17	13,846	14	15,058	172
1997-98	60	29,425	17	14,318	14	15,956	172
1998-99	60	30,245	17	14,793	14	16,090	187
1999-00	61	30,804	17	14,474	14	16,582	193
2000-01	62	30,511	18	14,843	14	17,072	207
Projections							
2003-04	NA*	30,560	NA*	16,446	NA*	19,246	--
2008-09	NA*	29,978	NA*	16,090	NA*	20,100	--

Source: Guilford County School Administrative Unit, 2001. *Depends on future construction schedule.

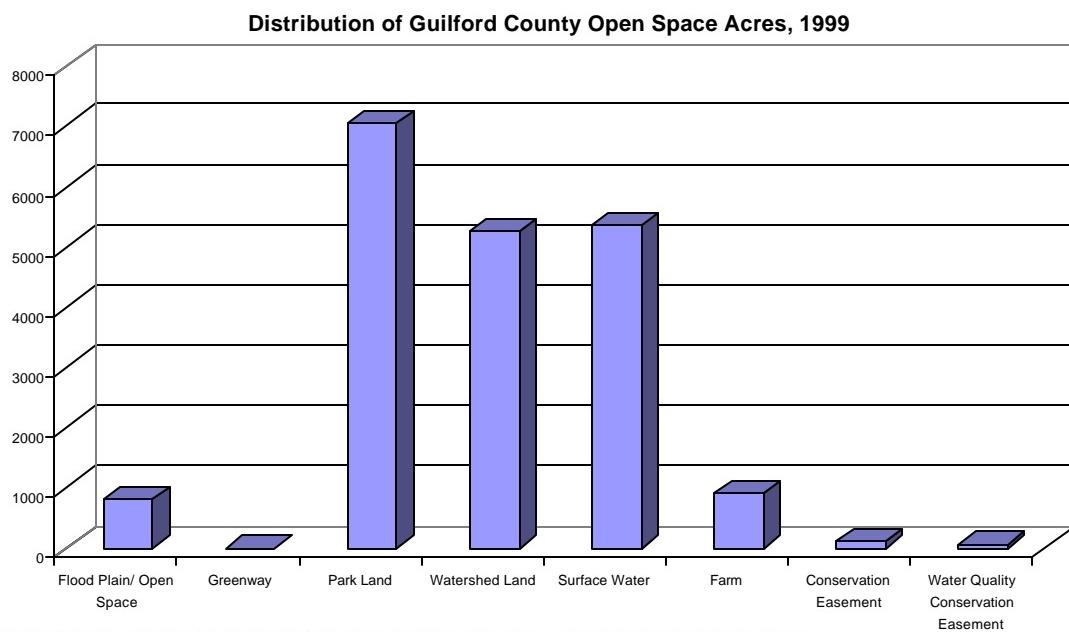


Acres of Parkland Per 1,000 Population in Guilford County

- According to the Guilford County Parks and Open Space Inventory, there is a total of 49.69 acres of open space per 1,000 persons in the County. The majority of this acreage is found in park land, at 17.88 acres. The next highest amounts are found in surface water and in watershed land, at 13.67 and 13.40, respectively.

Guilford County Parks & Open Space* Inventory Summary, 1999		
Property Type	Acres	Acres Per 1,000 Persons**
Flood Plain/ Open Space	783.89	1.99
Greenway	5.44	0.01
Park Land	7,035.47	17.88
Watershed Land	5,273.61	13.40
Surface Water	5,379.51	13.67
Farm	900.15	2.29
Conservation Easement	112.10	0.28
Water Quality Conservation Easement	70.49	0.17
Total	19,560.66	49.69

Source: Guilford County Planning & Development Dept., Guilford County Open Space Report, 2000. *Includes farm land, but not public land & surface water.
**Based upon 1999 Guilford County population est. of 393,496, Guilford County: 417,307.69 acres.



Municipal Credit Agency Ratings by Major Bond Raters

- The City of Greensboro has received very favorable evaluations of credit worthiness from nationally recognized credit rating agencies on its General Obligation debt issues. Standard and Poor's (S&P) and Moody's Investors Service (Moody's) have given the City of Greensboro's debt instruments their highest and second highest rating, AAA and Aa1, respectively.

Standard & Poor's and Moody's Ratings		
S&P	Moody's	Description
AAA	Aaa	Best quality; extremely strong capacity to pay principal and interest
AA	Aa1-Aa3	High quality; very strong capacity to pay principal and interest
A	A1-A3	Upper medium quality; strong capacity to pay principal and interest
BBB	Baa	Medium grade quality; adequate capacity to pay principal and interest
BB	Ba	Speculative quality; low capacity to pay principal and interest

Source: Greensboro Finance Dept., 2000. Note: The **bold** ratings indicate the City of Greensboro's current debt ratings.

Chapter 2

Triad Region

TRIAD REGION: INTRODUCTION

According to the 2000 Census, Greensboro has the third largest population among all cities in North Carolina. Greensboro's growth and development have implications far outside of its immediate municipal boundary.

The City of Greensboro also has the largest population in the Piedmont Triad (or Triad) region of North Carolina. However, defining the Triad region has long been difficult. The region is not consistently defined at federal, state, or local levels and few if any definitions include the same counties. In spite of this, it is important to have key statistics for those areas in the region whose population and economies are directly related to Greensboro.

Of the counties that are contiguous to Guilford County, four were selected as being a part of the Triad region for this study. In many cases, some of the cities within these selected counties were examined as well, to compare with Greensboro. The four counties chosen are Rockingham County to the north, Randolph County to the south, Alamance County to the east and Forsyth County to the west.

Persons and businesses in these adjacent counties have significant interaction with and impact upon Greensboro and Guilford County on a regular basis. Likewise, many choices made by governmental decision-makers in these counties, in addition to the health of their economies, may directly or indirectly impact Greensboro.

Annexation agreements, the provision of water and sewer services, and the increasing incorporations of towns within Guilford County are all issues that require closer examination. They are studied for the purpose of comparison since all of these cities and towns interact with and affect the City of Greensboro and each other in various ways.

Definitions of the Triad Region

Below are some of the varying definitions of the Triad region from the perspectives of the federal, state, and local agencies working on regional initiatives.

Federal: Following the 1990 census, the federal Office of Management and Budget (OMB) defined the Greensboro region as being part of a Metropolitan Statistical Area (MSA). The OMB defines MSAs for purposes of collecting, tabulating and publishing federal data. The general concept of an MSA is that of a large population nucleus, together with adjacent communities having a high degree of social and economic integration with that core.

To qualify as an MSA, an area must include at least one city with 50,000 or more inhabitants, or a Census Bureau-defined urbanized area (of at least 50,000 inhabitants) and a total metropolitan population of at least 100,000. The county in this area that contains the largest city becomes a "central county", along with any adjacent counties that have at least 50 percent of their population in the urbanized area surrounding that largest city. Additional "outlying counties" are included in a MSA if they meet specified requirements of commuting to the central county and other selected requirements of metropolitan character (such as population density and percent urban).

In December 2000, the OMB announced the adoption of new Standards for Defining Metropolitan and Micropolitan Statistical Areas. The OMB will apply the new standards with Census 2000 data and will announce definitions based on these standards in 2003.

Preliminary data from Census 2000 indicate that the primary, or core, Greensboro metropolitan area will be the three-county area composed of Guilford, Davidson, and Randolph Counties. Other counties in the area may qualify to be "combined" with this core area – meaning that there may be other counties with enough commuting to qualify as having a regional role, but of a secondary nature. The secondary or combined region may be a nine-county area that includes Alamance, Davie, Forsyth, Rockingham, Stokes, and Yadkin Counties.

State: For economic development and marketing purposes, the North Carolina Department of Commerce defines the region as a 12-county area that includes Alamance, Caswell, Davidson, Davie, Forsyth, Guilford, Montgomery, Randolph, Rockingham, Stokes, Surry, and Yadkin Counties. The Piedmont Triad Partnership, a local nonprofit organization devoted to marketing the Piedmont Triad for business expansions and relations, uses this same definition.

The state also defines 18 lead regional organizations throughout the state charged with regional planning and technical assistance. Guilford County is one of six counties served by the Piedmont Triad Council of Governments. This lead organization assists five additional counties: Alamance, Caswell, Davidson, Randolph, and Rockingham.

The Environment and Natural Resources Region is a 15-county area that includes Alamance, Alleghany, Ashe, Caswell, Davidson, Davie, Forsyth, Guilford, Randolph, Rockingham, Stokes, Surry, Watauga, Wilkes, and Yadkin Counties.

The North Carolina Department of Transportation is also organized by planning divisions or regions. The NCDOT Division 7 includes the five-county area of Alamance, Caswell, Guilford, Orange, and Rockingham.

Piedmont Authority for Regional Transportation: The Piedmont Authority for Regional Transportation (PART) coordinates regional transportation planning. This is done in an effort to enhance the quality of all forms of transportation for all citizens through efficient use and protection of our natural, economic, and human resources. PART has members from a five-county area that includes Alamance, Davidson, Forsyth, Guilford, and Randolph Counties. These members include the four metropolitan planning organizations in the region: Greensboro, Winston-Salem, High Point, and Burlington. Each is involved in transportation planning within their respective urban area.

Metropolitan Planning Organization: The City of Greensboro Department of Transportation is the lead transportation planning agency for the Greensboro Urban Area Metropolitan Planning Organization (MPO). The member agencies include the City of Greensboro, Guilford County, and the North Carolina Department of Transportation. There are four separate MPOs within the Piedmont Triad region. They individually serve Greensboro, Winston-Salem, High Point, and Burlington. MPOs conduct the continuing, cooperative, and comprehensive transportation planning process for the area. Key MPO goals include:

- plan for the development and operation of an integrated, intermodal transportation system;
- foster the safe, efficient, and economical movement of people and freight;
- foster economic growth and development; and
- minimize the negative effects of transportation, including air pollution.

The Greensboro MPO planning area covers most of Guilford County, excluding the Gibsonville, Whitsett, High Point, and Jamestown areas.

TRIAD REGION: SUMMARY HIGHLIGHTS

The “Triad region” is not consistently defined at federal, state or local levels and few definitions include the same counties. In spite of this, it is important to have key statistics for those areas in the region whose population and economies are directly related to Greensboro.

Commuting and Transportation

Of the approximately 142,000 people working in Greensboro in 1990, just over half (56.4 percent) were residents of Greensboro. In the same year, approximately 62,000 people per day commuted into Greensboro to work from other areas within the region. Of those 62,000, approximately 35,000 were coming from outlying areas within Guilford County, including all of the City of High Point. Although Census 2000 commuting data have not been released, other studies indicate that the number of commuters into Greensboro continued to rise throughout the 1990s.

Population and Employment

Greensboro's population grew by 21.8 percent from 1990 to 2000, slightly ahead of Guilford County, which had a 21.2 percent rate. In the past 10 years, six towns, all within a 10-mile radius of Greensboro, have incorporated. The towns are Stokesdale, Whitsett, Summerfield, Pleasant Garden, Sedalia, and Oak Ridge.

Many of these suburban (and recently incorporated) communities immediately surrounding Greensboro had significantly higher population growth rates. For example, Summerfield, which adjoins Greensboro's northwest border, had a population growth rate of 316.0 percent. The town of Whitsett, east of Greensboro, experienced a 156.0 percent growth rate.

Randolph County had the highest population growth rate (22.4 percent) of all Triad regional counties during the 1990s, while Rockingham experienced the lowest (6.8 percent). The population growth rates in Alamance and Forsyth Counties were lower than Guilford County's rate of 21.2 percent.

Among Metropolitan Statistical Areas (MSAs) in the state, from 1990 to 2000, the Raleigh-Durham-Chapel Hill, NC MSA experienced the highest population growth rate (38.4 percent), followed by the Charlotte-Gastonia-Rock Hill, NC-SC MSA (29.1 percent) and the Greensboro-Winston-Salem-High Point, NC MSA (19.2 percent).

Agriculture

Farmland acreage in all counties in the Triad region has declined since 1974 according to data from the United States Census Bureau. However, according to the Census of Agriculture, the average size of farms (in acreage) in all counties of the Triad region increased between the years 1974 and 1997. In 1997, 39 percent of the land in Alamance County was reported to be farmland, closely followed by Rockingham County, where 37 percent of the land was reported to be farmland. Randolph, Guilford and Forsyth Counties each had close to or below 30 percent of the county's land reported as farmland.

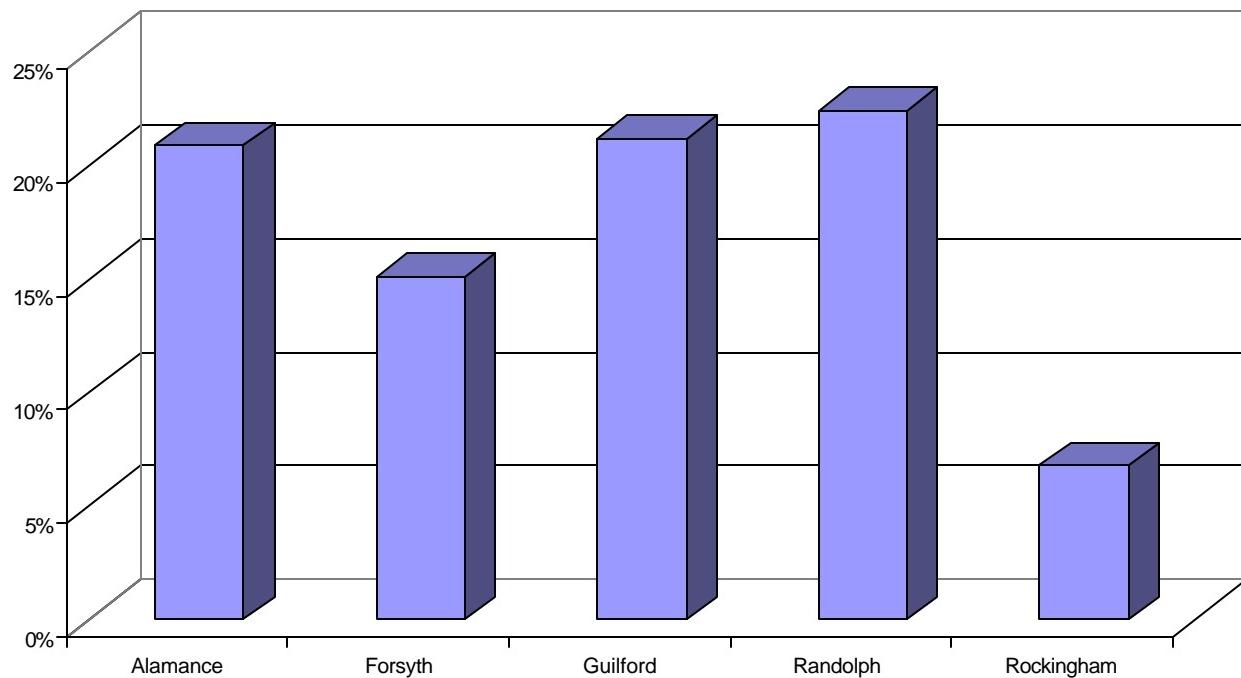
Retail Sales

The City of Greensboro accounted for over a third of all retail sales within the five-county Triad region for the period 1999-2000. Winston-Salem followed at 23.5 percent. Among the regional counties, Guilford had the highest proportion of retail sales at 51.5 percent. Annual per capita retail sales in Greensboro were the highest among all other cities in the region at 35.4 percent.

Table 2-1: Triad Regional Population Growth, 1970-2000					
Municipality	1970	1980	1990	2000	Percent Change, 1990-2000
Burlington	35,930	37,266	39,498	44,917	13.7%
Greensboro	144,076	155,642	183,894	223,891	21.8%
High Point	63,229	63,380	69,428	85,839	23.6%
Winston-Salem	133,683	131,885	143,485	185,776	29.5%
County					
Alamance	96,502	99,319	108,213	130,800	20.9%
Forsyth	215,118	243,683	265,878	306,067	15.1%
Guilford	288,645	317,154	347,420	421,048	21.2%
Randolph	76,358	93,000	106,546	130,454	22.4%
Rockingham	72,402	83,426	86,064	91,928	6.8%
County Regional Totals	749,025	836,582	914,121	1,080,297	18.2%

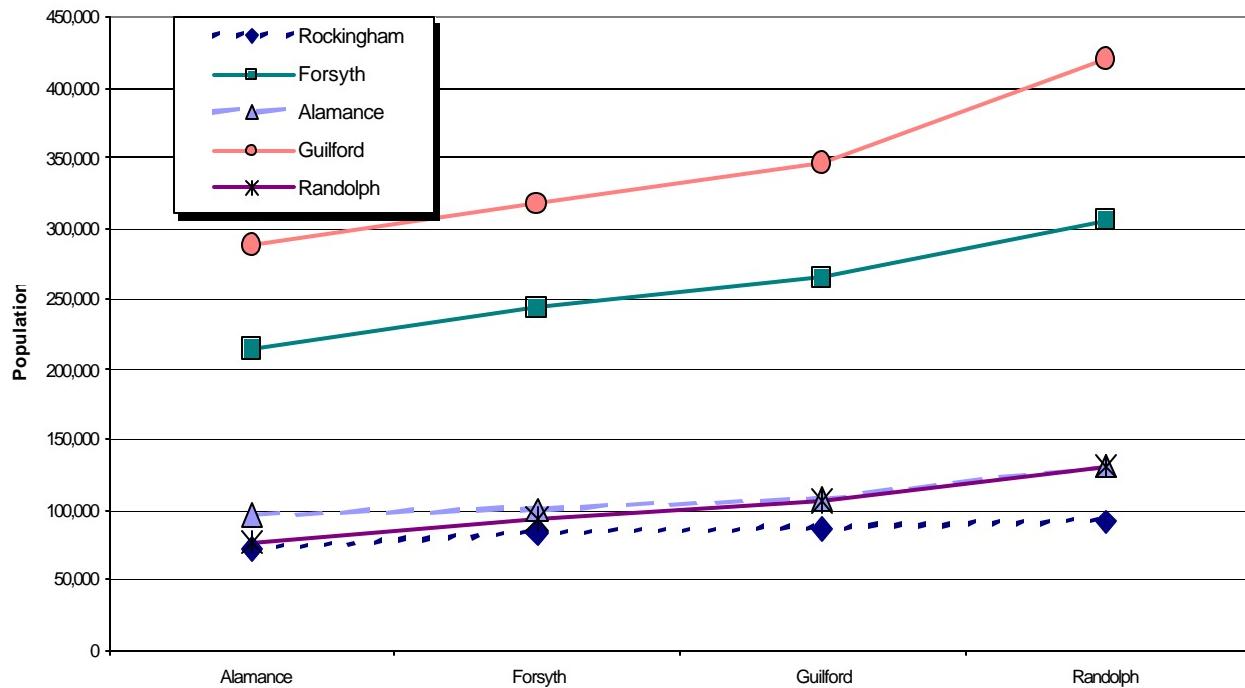
Source: US Census Bureau, Census of Population & Housing, 1970-2000.

Figure 2-1: Triad Regional Population Growth, Percent Change in Counties from 1990-2000



Source: US Census Bureau, Population & Housing, 1970-2000.

Figure 2-2: Triad Regional Population Growth in Selected Counties, 1970-2000



Source: US Census Bureau, Population & Housing, 1970-2000.

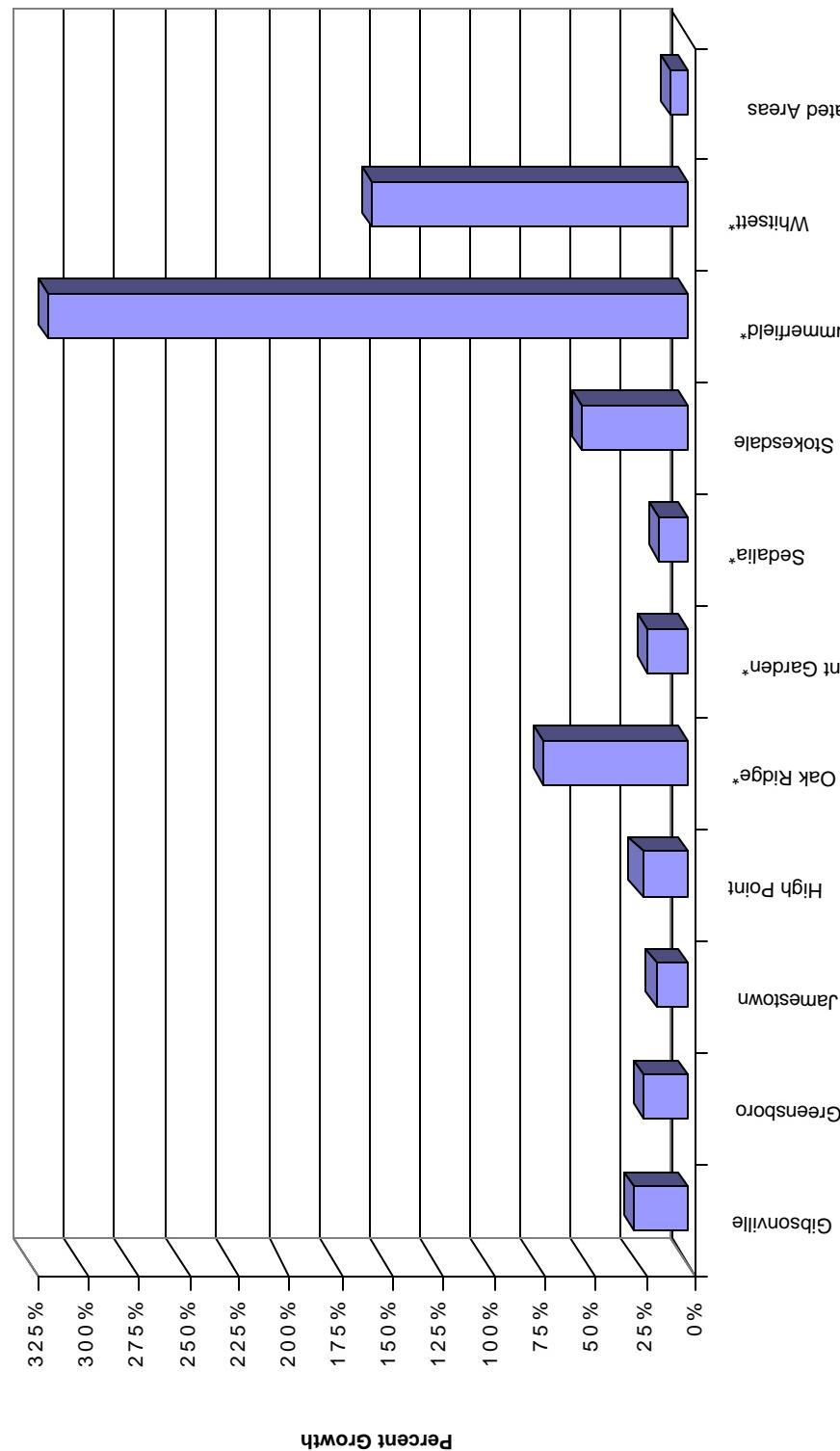
Table 2-2: Population Growth in Triad Regional North Carolina Counties and Selected Municipalities, 1990-2000

County or Municipality	1990	2000	Growth	Percent Growth
Alamance County	108,213	130,800	22,587	20.9%
Burlington	39,498	44,917	5,419	13.7%
Elon College	4,448	6,738	2,290	51.5%
Graham	10,368	12,833	2,465	23.8%
Mebane	4,754	7,284	2,530	53.2%
Unincorporated Areas	43,786	52,380	8,594	19.6%
Forsyth County	265,878	306,067	40,189	15.1%
Clemmons	6,020	13,827	7,807	129.7%
Kernersville	10,899	17,126	6,227	57.1%
Lewisville*	6,433	8,826	2,393	37.2%
Winston-Salem	143,485	185,776	42,291	29.5%
Unincorporated Areas	94,928	70,840	-24,088	-25.4%
Guilford County	347,420	421,048	73,628	21.2%
Gibsonville	3,445	4,372	927	26.9%
Greensboro	183,894	223,891	39,997	21.8%
Jamestown	2,662	3,088	426	16.0%
High Point	69,428	85,839	16,411	23.6%
Oak Ridge*	2,322	3,988	1,666	71.7%
Pleasant Garden*	3,921	4,714	793	20.2%
Sedalia*	540	618	78	14.4%
Stokesdale	2,134	3,267	1,133	53.1%
Summerfield*	1,687	7,018	5,331	316.0%
Whitsett*	268	686	418	156.0%
Unincorporated Areas	79,422	86,605	7,183	9.0%
Randolph County	106,546	130,454	23,908	22.4%
Archdale	6,975	9,014	2,039	29.2%
Asheboro	16,362	21,672	5,310	32.5%
Randleman	2,612	3,557	945	36.2%
Trinity*	6,470	6,690	220	3.4%
Unincorporated Areas	69,780	83,693	13,913	19.9%
Rockingham County	86,064	91,928	5,864	6.8%
Eden	15,238	15,908	670	4.4%
Reidsville	12,183	14,485	2,302	18.9%
Unincorporated Areas	50,703	53,075	2,372	4.7%
Regional Total	914,121	1,080,297	166,176	18.2%

Source: NC Office of State Planning, 1999 estimates released in the fall of 2000.

*Incorporated in the 1990s; number for 1990 represents the population that was living within the original (as incorporated) boundary of the town in that year.

Figure 2-3: Population Growth in Guilford County Municipalities, 1990-2000



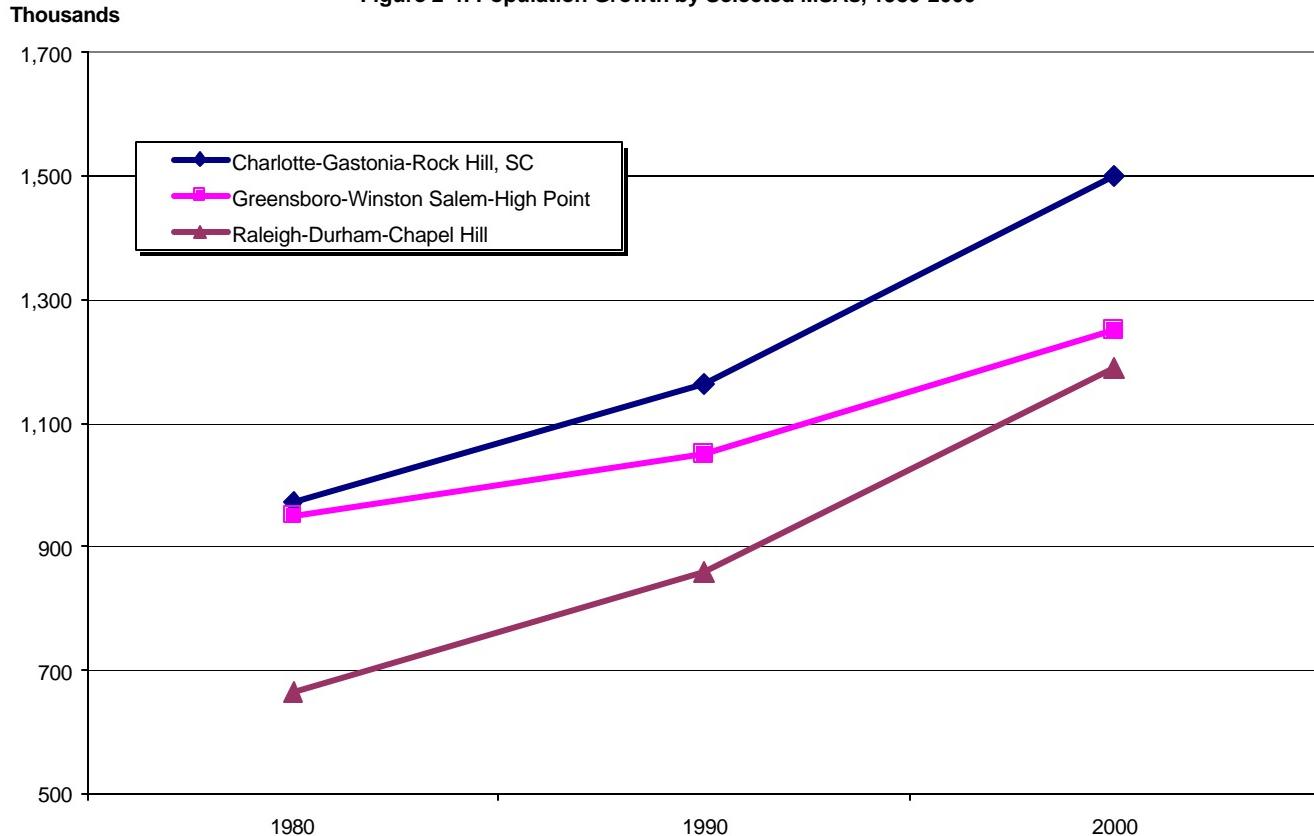
Source: NC Office of State Planning, 1999 estimates released in the fall of 2000. *Incorporated in the 1990s; number for 1990 represents the population that was living within the original (as incorporated) boundary of the town in that year.

Table 2-3: Population Growth by Selected MSAs, 1980-2000

MSA	Census			1990-2000 Growth	
	1980	1990	2000	Number	Percent
Charlotte-Gastonia-Rock Hill, SC	971,447	1,161,546	1,499,293	337,747	29.1%
Greensboro-Winston Salem-High Point	950,763	1,050,304	1,251,509	201,205	19.2%
Raleigh-Durham-Chapel Hill	664,789	858,516	1,187,941	329,425	38.4%

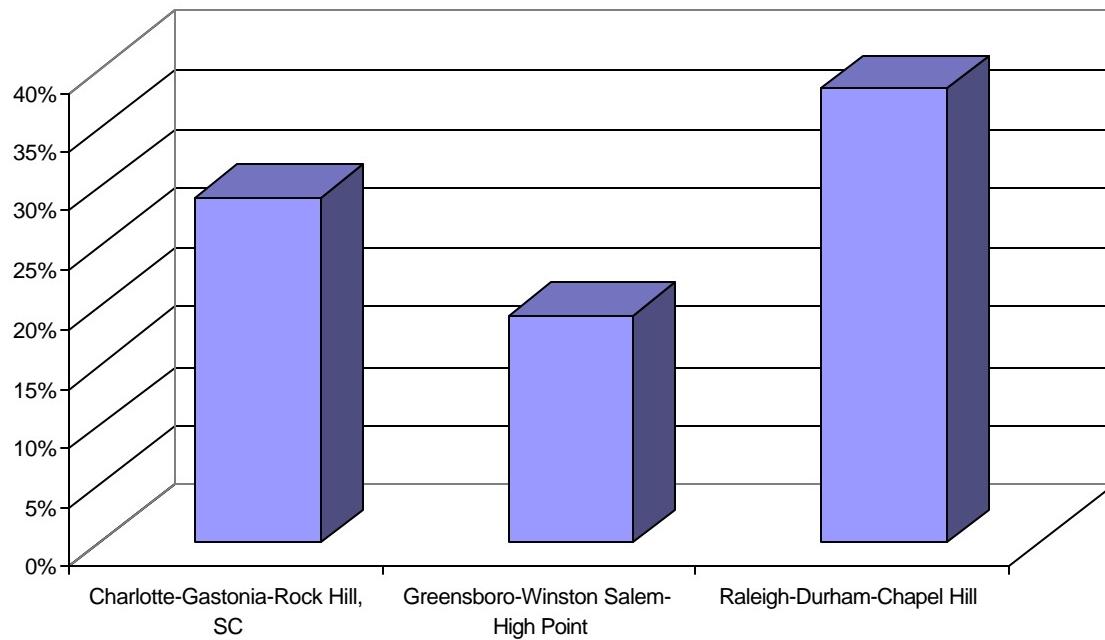
Source: US Census Bureau, 1980, 1990, & 2000 Census of Population & Housing.

Figure 2-4: Population Growth by Selected MSAs, 1980-2000



Source: US Census Bureau, 1980, 1990, & 2000 Census of Population

Figure 2-5: Percent Population Growth by Selected MSAs, 1990-2000



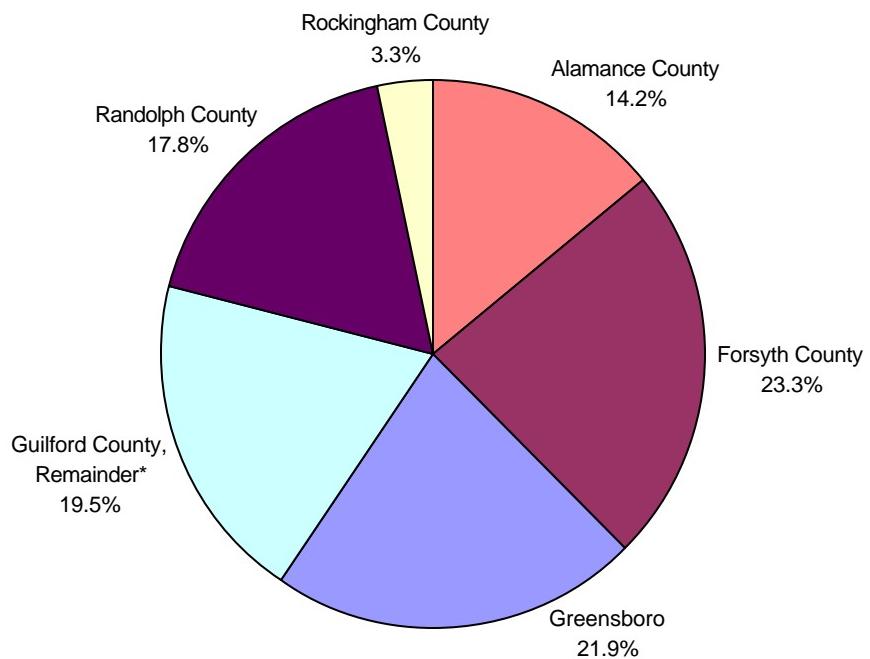
Source: US Census Bureau, 1980, 1990, & 2000 Census of Population & Housing.

Table 2-4: Overall Triad Regional Population and Employment Growth Share by Location, 1990-1999

County/ Municipality	Population ¹		Employment ²	
	Number	Percent	Number	Percent
Alamance County	15,829	14.2%	11,184	10.0%
Forsyth County	25,968	23.3%	28,999	25.9%
Greensboro	24,316	21.9%	37,171	33.1%
Guilford County, Remainder*	21,687	19.5%	22,832	20.4%
Randolph County	19,770	17.8%	9,627	8.6%
Rockingham County	3,681	3.3%	2,327	2.1%
Total	111,251	100.0%	112,140	100.0%

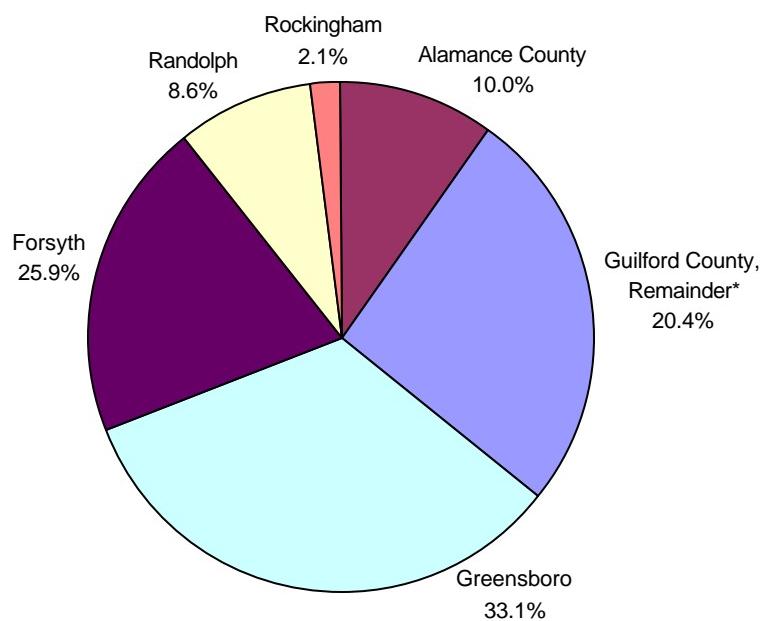
Source: ¹NC Office of State Planning, 2000 & ²NC Employment Security Commission, Employment & Wages in NC, 1990-1999. *Does not include Greensboro.

Figure 2-6: Overall Triad Regional Population Growth Share by Location, 1990-1999



Source: NC Office of State Planning, 2000 . *Does not include Greensboro.

Figure 2-7: Overall Triad Regional Employment Growth Share by Location, 1990-1999

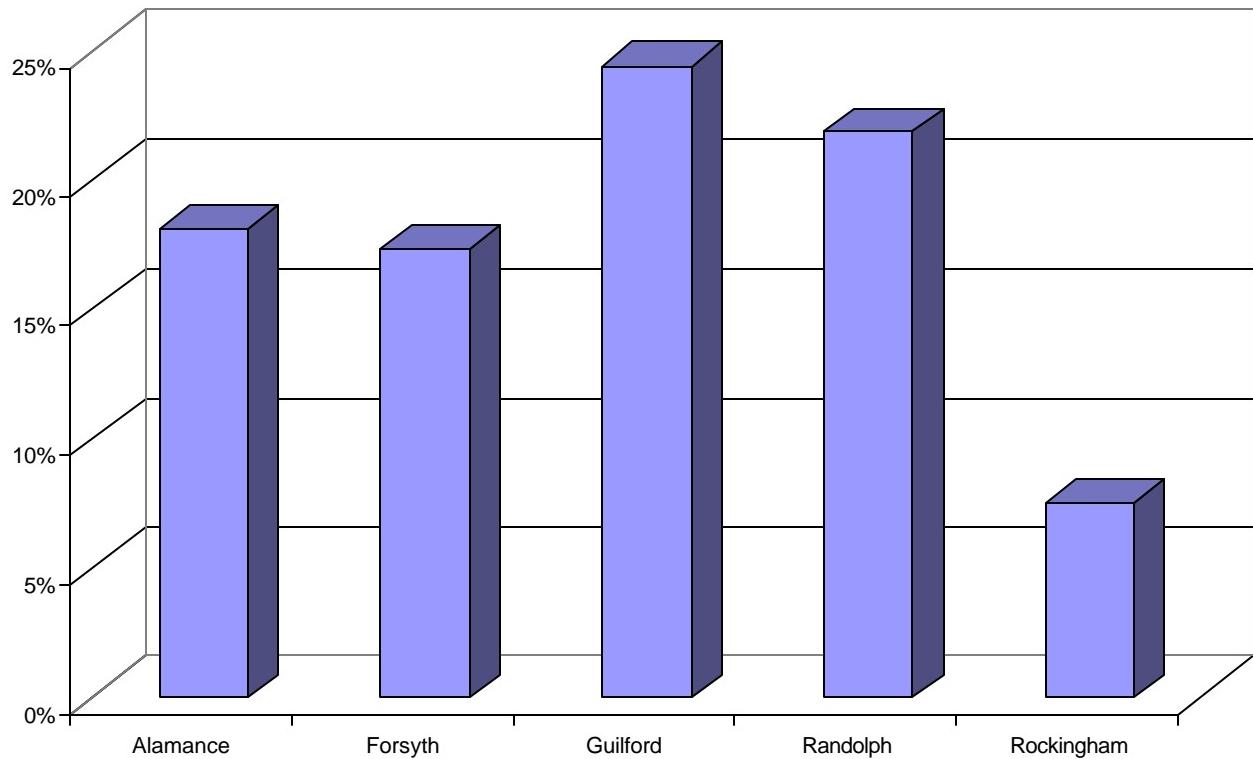


Source: NC Employment Security Commission, Employment & Wages in NC, 1990-1999. *Does not include Greensboro.

Table 2-5: Employment Growth in Triad Regional Counties, 1990-1999				
County	1990	1999	Growth	Percent Growth
Alamance	54,081	65,265	11,184	20.7%
Forsyth	151,590	180,589	28,999	19.1%
Guilford	225,208	285,211	60,003	26.6%
Randolph	40,890	50,517	9,627	23.5%
Rockingham	31,584	33,911	2,327	7.4%
Regional Total	503,353	615,493	112,140	22.3%

Source: NCESC, Employment & Wages in NC, 1990 & 1999. 1999 information is as of the 4th Quarter, 1999.

Figure 2-8: Percent Employment Growth in Triad Regional Counties, 1990-1999



Source: NCESC, Employment & Wages in NC, 1990 & 1999 Annual Editions.

Table 2-6: Changes in Greensboro Commuting Patterns, 1980-1990

Category	1980	1990	Growth 1980-1990
Greensboro Residents Working in Greensboro	55,054	80,123	45.5%
Percent of Greensboro Residents (Labor Force) Working in Greensboro	74.1%	81.2%	7.1%
Number of Persons Working in Greensboro	95,372	141,983	48.9%
Greensboro's Proportion of Guilford County Employment	59.0%	62.0%	3.0%
Jobs in Greensboro	95,372	141,983	48.9%
Greensboro Residents Commuting Out	19,212	18,549	-3.5%
Persons Commuting In to Greensboro to Work	40,318	61,860	53.4%
Net Daily Commuting Inflow	21,106	43,311	105.2%

Source: US Census Bureau, 1980 & 1990 Census of Population & Housing, Journey to Work. Data from the 2000 Census will not be tabulated & published until 2003.

Table 2-7: Detailed Commuting Figures for Greensboro, 1990

County/ Municipality	In to Greensboro From:	Out of Greensboro to:	Net Commuting
Guilford County, Remainder*	30,582	8,652	21,930
Randolph County	5,775	650	5,125
Rockingham County	5,134	736	4,398
Forsyth County, Remainder	4,984	809	4,175
Other	5,746	2,622	3,124
High Point	4,587	2,376	2,211
Alamance County	3,155	972	2,183
Winston-Salem	1,897	1,732	165
Total	61,860	18,549	43,311

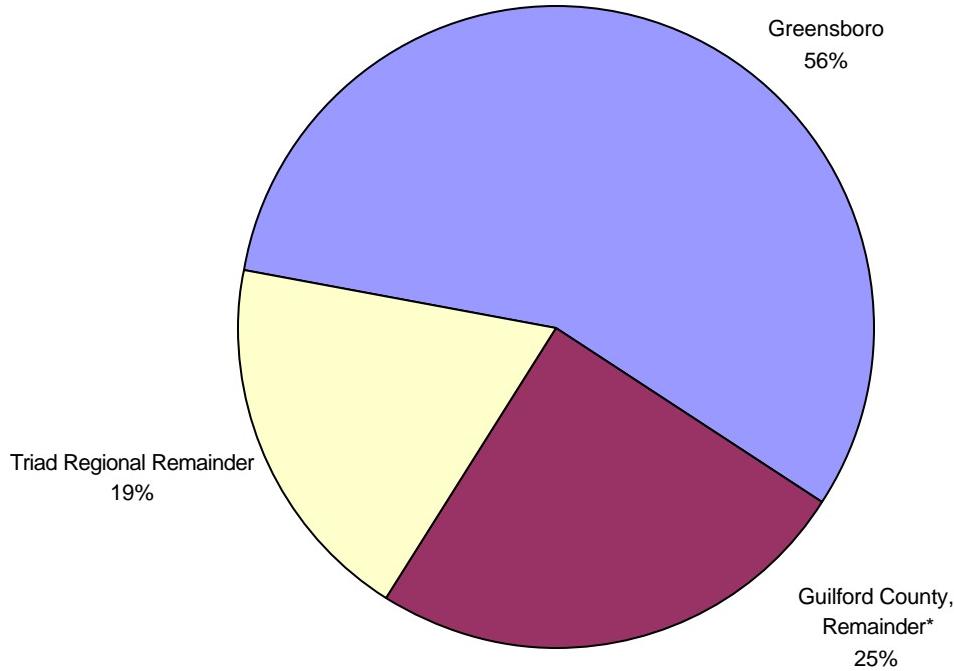
Source: US Census Bureau, 1990 Census of Population & Housing, Journey to Work. *Not including Greensboro & High Point.

Table 2-8: Persons Working in Greensboro by Place of Residence, 1990

Municipality/ County	Number	Percent of Total Jobs
Greensboro	80,123	56.4%
Guilford County, Remainder*	30,582	21.5%
Forsyth County, Remainder**	4,984	3.5%
Randolph County	5,775	4.1%
Other***	5,746	4.0%
Rockingham County	5,134	3.6%
High Point	4,587	3.2%
Alamance County	3,155	2.2%
Winston-Salem	1,897	1.3%
Total	141,983	100.0%

Source: US Census Bureau, 1990 Census of Population & Housing, Journey to Work. *Does not include Greensboro & High Point. **Does not include Winston-Salem. ***Includes Davidson Co.; portions of these numbers are estimated, as detailed commuting patterns information is only available for areas within the MSA.

Figure 2-9: Persons Working in Greensboro by Place of Residence, 1990



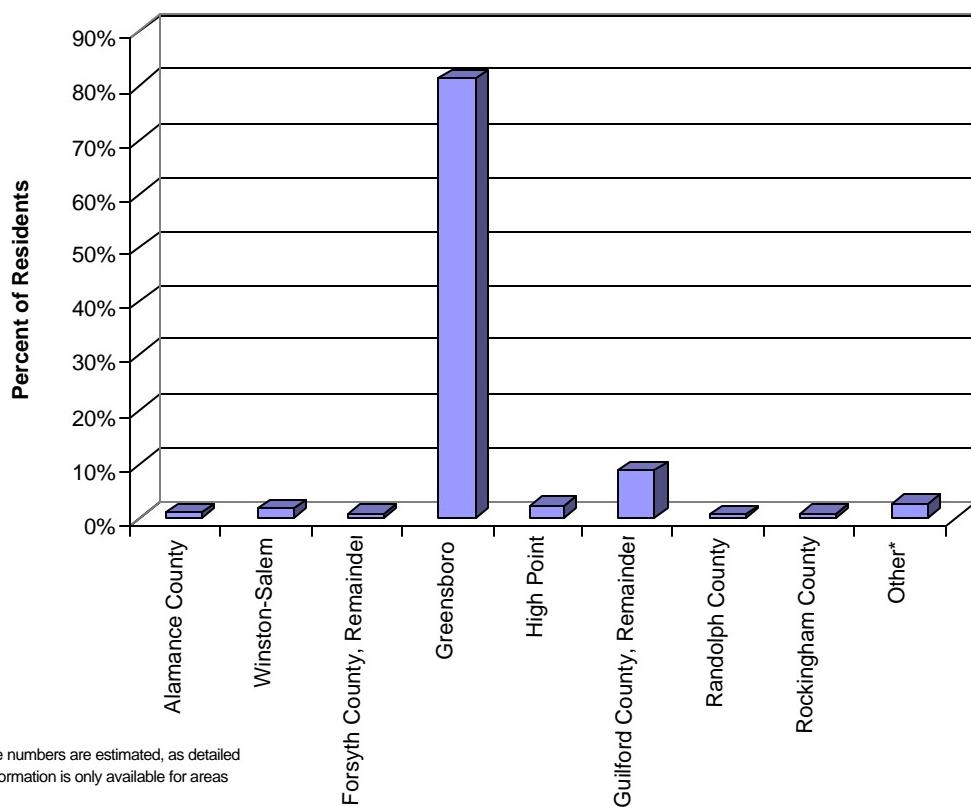
Source: US Census Bureau, 1990 Census of Population & Housing, Journey to Work. *Includes High

Table 2-9: Where Greensboro Residents Work, 1990

County/ Municipality	Number	Percent
Alamance County	972	1.0%
Winston-Salem	1,732	1.8%
Forsyth County, Remainder	809	0.8%
Greensboro	80,123	81.2%
High Point	2,376	2.4%
Guilford County, Remainder	8,652	8.8%
Randolph County	650	0.7%
Rockingham County	736	0.7%
Other*	2,622	2.7%

Source: US Census Bureau, 1990 Census of Population & Housing, Journey to Work. *Note: Includes Davidson County; portions of these numbers are estimated, as detailed commuting patterns information is only available for areas within the MSA.

Figure 2-10: Where Greensboro Residents Work, 1990



*Note: Portions of these numbers are estimated, as detailed commuting patterns information is only available for areas within the MSA.

Table 2-10: Triad Regional Commuting Patterns of Guilford County, 1990

County	In to Guilford County From:	Out of Guilford County to:
Forsyth	13,320	5,407
Alamance	5,143	3,146
Randolph	17,436	2,594
Rockingham	7,898	1,240
Other*	19,644	6,246
Total	63,441	18,633
Net Commuting Inflow	44,808	

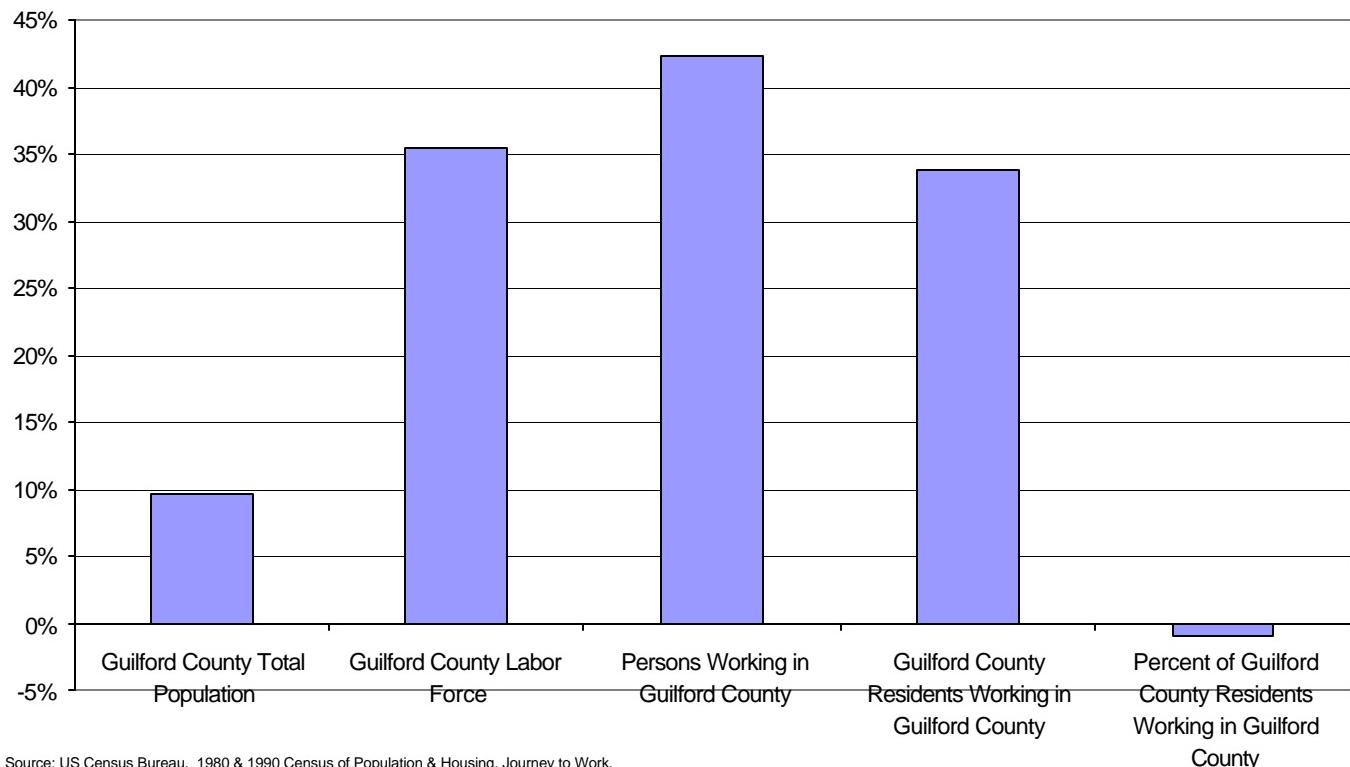
Source: US Census Bureau, 1990 Census of Population & Housing, Journey to Work. *Note: Includes Davidson County; portions of these numbers are estimated, as detailed commuting patterns information is only available for areas within the MSA.

Table 2-11: Guilford County Commuting Patterns, 1980-1990

	1980	1990	Growth 1980-1990
Guilford County Total Population	317,154	347,420	9.5%
Guilford County Labor Force	137,370	185,853	35.3%
Persons Working in Guilford County	162,028	230,661	42.4%
Guilford County Residents Working in Guilford County	125,057	167,220	33.7%
Percent of Guilford County Residents Working in Guilford County	91.0%	90.0%	-1.0%

Source: US Census Bureau. 1980 & 1990 Census of Population & Housing, Journey to Work.

Figure 2-11: Guilford County Commuting, Growth From 1980 to 1990



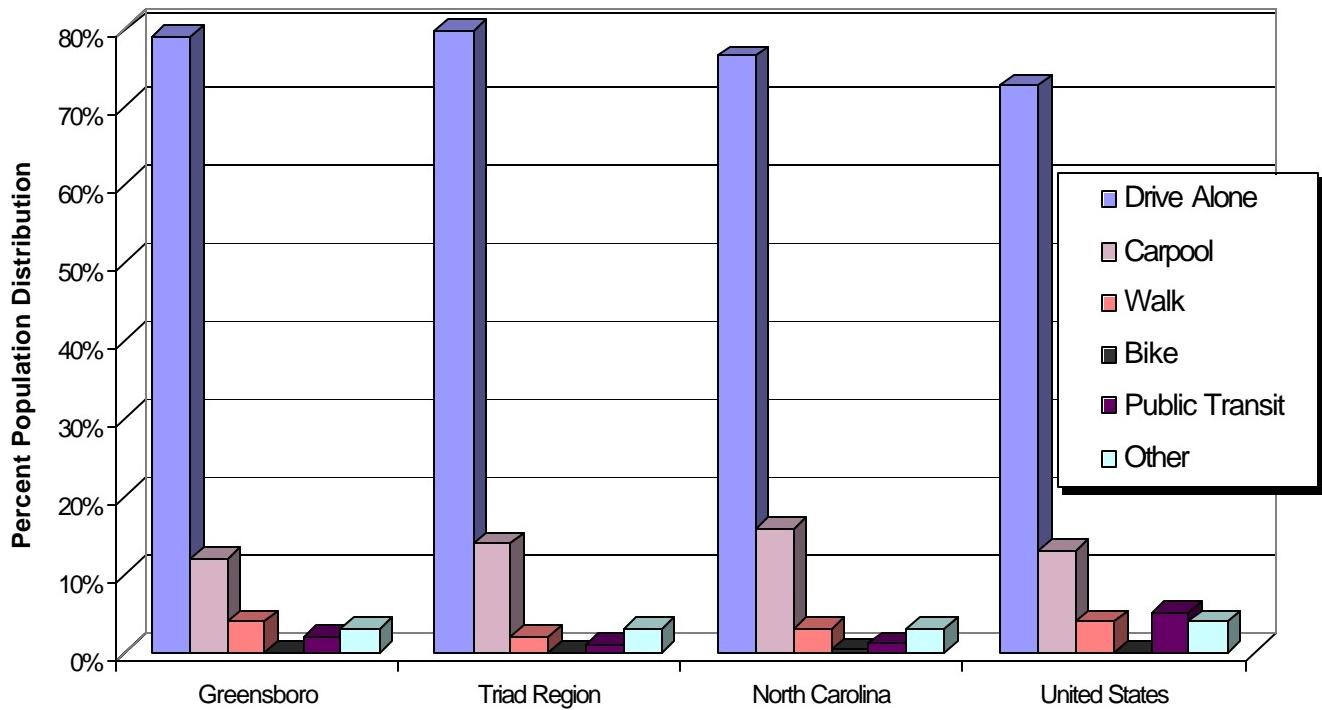
Source: US Census Bureau. 1980 & 1990 Census of Population & Housing, Journey to Work.

Table 2-12: Transportation Mode Share Comparisons in Selected Areas, 1990

Area	Drive Alone	Carpool	Walk	Bike	Public Transit	Other	Total
Greensboro	79%	12%	4%	0%	2%	3%	100%
Triad Region	80%	14%	2%	0%	1%	3%	100%
North Carolina	77%	16%	3%	0%	1%	3%	100%
United States	73%	13%	4%	0%	5%	4%	100%

Source: US Census Bureau, 1990 Census of Population & Housing, Journey to Work.

Figure 2-12: Transportation Mode Share Comparisons in Selected Areas 1990



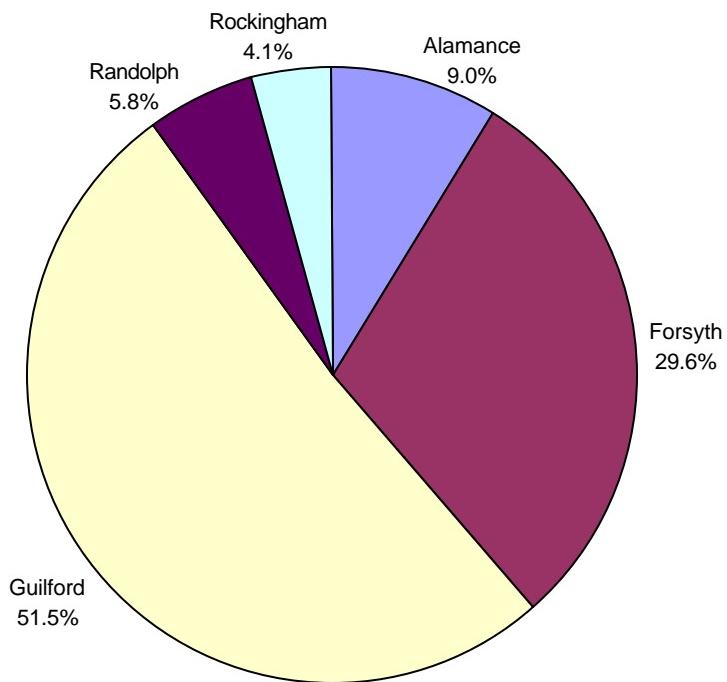
Source: US Census Bureau, 1990 Census of Population & Housing, Journey to Work

Table 2-13: Triad Regional Retail Sales, 1999-2000

Regional Municipalities*	Gross Retail Sales	Annual Retail Sales per Capita*	Proportion of the Population Within the Region	Proportion of Retail Sales within the Region
Archdale	72,643,082	\$8,076	0.9%	0.4%
Asheboro	467,190,404	\$23,905	1.9%	2.6%
Burlington	1,108,076,989	\$25,511	4.2%	6.2%
Eden	229,550,983	\$14,948	1.5%	1.3%
Graham	152,966,746	\$12,450	1.2%	0.9%
Greensboro	6,365,619,467	\$30,573	20.3%	35.4%
High Point	1,734,827,446	\$22,360	7.6%	9.7%
Kernersville	465,972,755	\$29,445	1.5%	2.6%
Reidsville	250,478,550	\$17,460	1.4%	1.4%
Winston-Salem	4,219,136,972	\$24,308	16.9%	23.5%
Regional Counties				
Alamance	1,620,577,735	\$13,065	12.10%	9.0%
Forsyth	5,315,588,103	\$18,214	28.46%	29.6%
Guilford	9,243,741,011	\$23,496	38.37%	51.5%
Randolph	1,044,671,046	\$8,270	12.32%	5.8%
Rockingham	733,567,773	\$8,174	8.75%	4.1%
Regional Totals	17,958,145,668	\$17,514	100.0%	100.0%

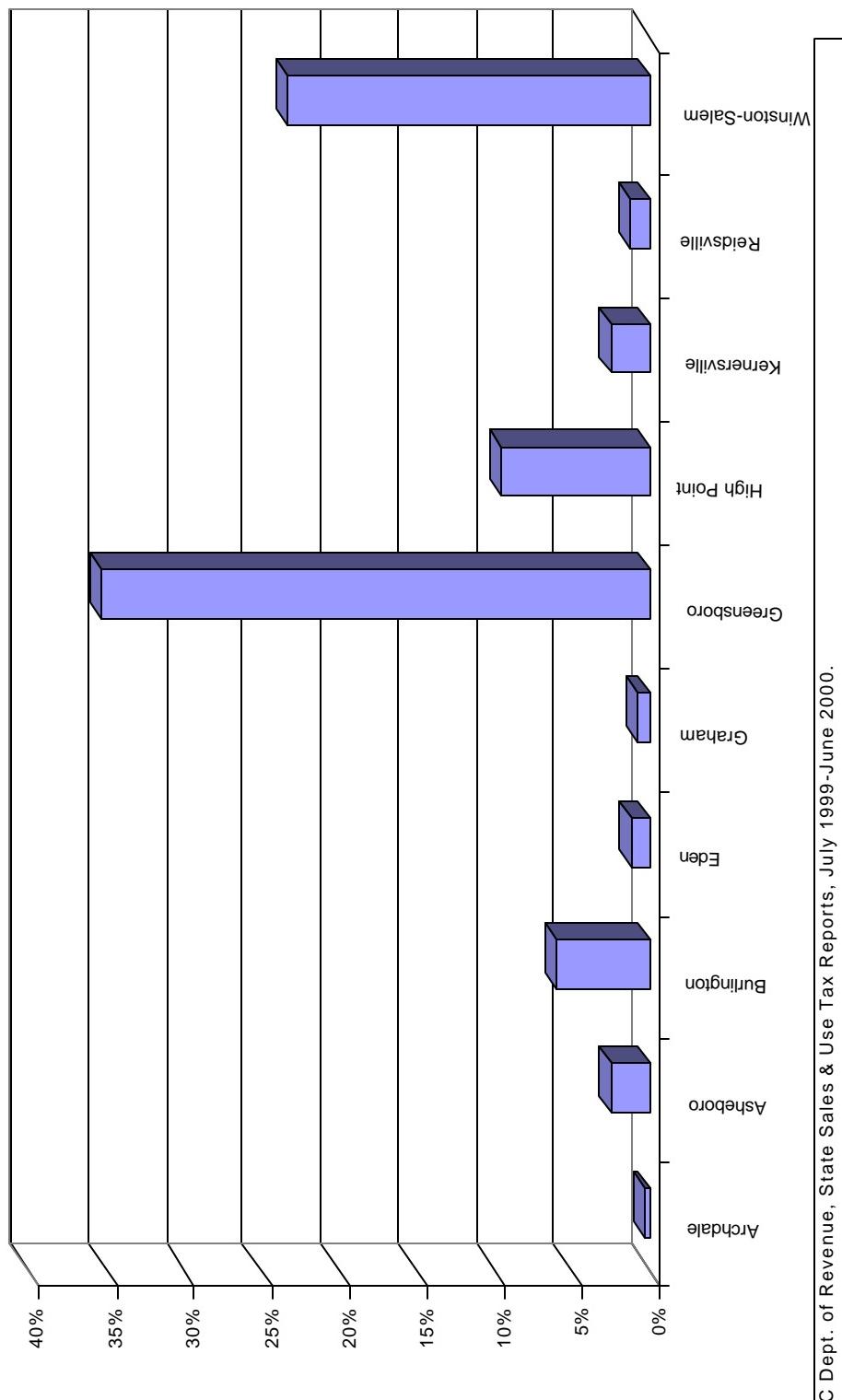
Source: NC Dept. of Revenue, State Sales & Use Tax Reports, July 1999-June 2000. *Total gross retail sales divided by population. **Only towns of 10,000+ people.

Figure 2-13: Triad Regional Retail Sales by County, 1999-2000



Source: NC Dept. of Revenue, State Sales & Use Tax Reports, July 1999-June 2000.

Figure 2-14: Triad Regional Retail Sales by Municipality, 1999-2000



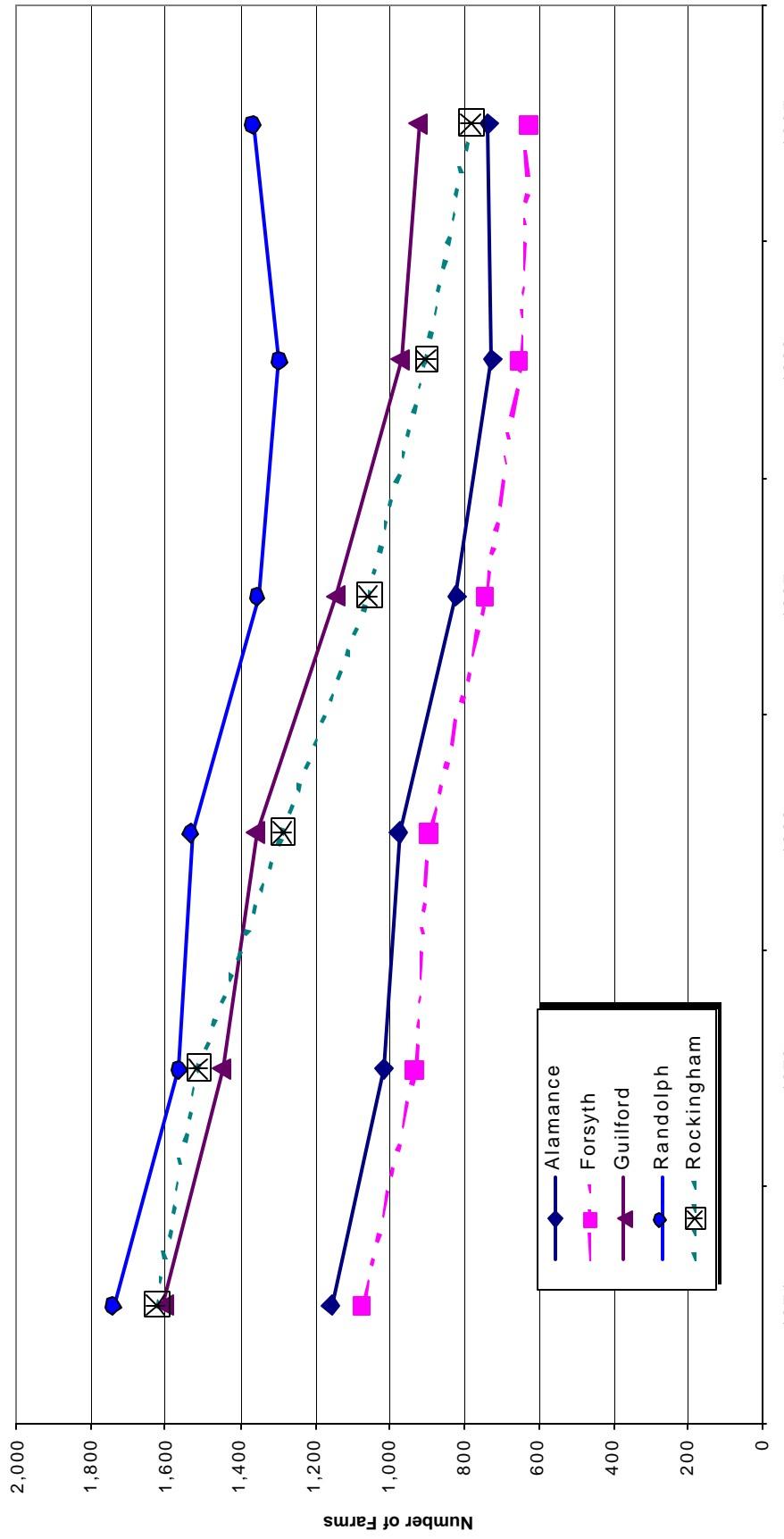
Source: NC Dept. of Revenue, State Sales & Use Tax Reports, July 1999-June 2000.

Table 2-14: Triad Regional Agriculture by County, 1974-1997

	Farms (Number)	Land in Farms (Acres)	Average Size of Farms (Acres)	Percentage of Land in Farms	Total County Acreage
Alamance					275,642
1974	1,155	124,857	108	45%	
1978	1,013	118,082	117	43%	
1982	972	114,973	118	42%	
1987	821	99,826	122	36%	
1992	725	101,073	139	37%	
1997	731	107,801	147	39%	
Forsyth					262,189
1974	1,072	73,960	69	28%	
1978	929	66,003	71	25%	
1982	893	59,678	67	23%	
1987	735	55,132	75	21%	
1992	647	47,837	74	18%	
1997	621	51,091	82	19%	
Guilford					416,083
1974	1,607	164,180	102	39%	
1978	1,444	142,099	98	34%	
1982	1,354	135,965	100	33%	
1987	1,141	126,369	111	30%	
1992	970	113,654	117	27%	
1997	920	111,882	122	27%	
Randolph					503,981
1974	1,736	180,744	104	36%	
1978	1,561	170,690	109	34%	
1982	1,527	163,951	107	33%	
1987	1,350	154,350	114	31%	
1992	1,293	144,858	112	29%	
1997	1,366	148,301	109	29%	
Rockingham					362,541
1974	1,626	176,903	109	49%	
1978	1,512	163,647	108	45%	
1982	1,286	148,090	115	41%	
1987	1,056	137,426	130	38%	
1992	902	130,879	145	36%	
1997	780	133,842	172	37%	

Source: US Census Bureau, 1997 Census of Agriculture.

Figure 2-15: Decline in Number of Triad Regional Farms, 1974-1997



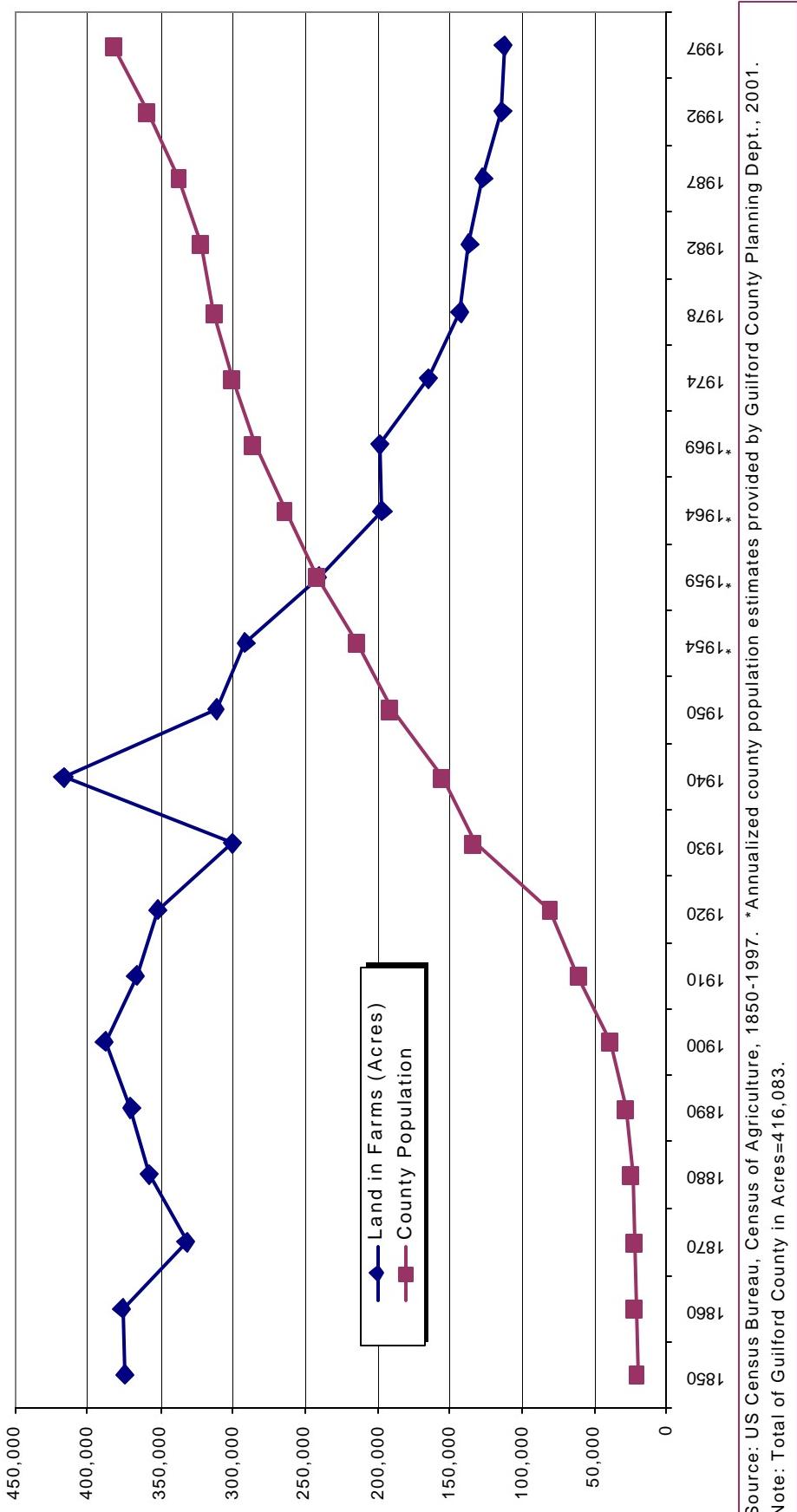
Source: US Census Bureau, 1997 Census of Agriculture.

Table 1: Guilford County Land in Farms vs. Population,
1850-1997

Year	Farms (Number)	Land in Farms (Acres)	County Population
1850	1,668	373,746	19,754
1860	1,503	376,537	20,056
1870	2,100	332,205	21,736
1880	2,810	356,653	23,585
1890	2,920	370,576	28,052
1900	3,497	388,940	39,074
1910	3,776	366,828	60,497
1920	4,021	350,659	79,272
1930	3,864	300,677	133,010
1940	4,941	416,640	153,916
1950	4,768	311,091	191,057
*1954	4,511	290,335	213,242
*1959	3,020	239,638	240,974
*1964	2,302	197,035	263,348
*1969	2,240	197,472	284,383
1974	1,607	164,180	300,663
1978	1,444	142,099	312,456
1982	1,354	135,965	322,600
1987	1,141	126,369	336,905
1992	970	113,654	357,737
1997	920	111,882	381,916

Source: US Census Bureau, Census of Agriculture, 1850-1997. *Annualized county population estimates provided by Guilford County Planning Dept., 2001. Note: Total of Guilford County in Acres=416,083.

Figure 2-16: Guilford County Land in Farms vs. Population, 1850-1997



Chapter 3

Demographics

DEMOGRAPHICS: INTRODUCTION

The principal focus of this chapter is to examine the demographics within Greensboro, as well as to compare it to other areas. Awareness of demographic change is vital to decision-makers in order to effectively plan for basic city services and functions. Estimates of future population are useful tools as well, in planning for human service needs, future capital improvement projects, and bond referendums.

Population growth within the corporate limits of Greensboro is due primarily to annexation. Other factors include housing unit additions in newly annexed areas, construction of new single- and multi-family residential units citywide, a positive natural increase (births minus deaths), immigration, shifts of inner-city population, and job relocations.

This chapter looks at Greensboro over time, and compares it with selected county, state, and national statistics. The City is also compared with the five selected North Carolina cities and the three out-of-state cities.

DEMOGRAPHICS: SUMMARY HIGHLIGHTS

Population

According to the North Carolina Office of State Planning, which uses fiscal year calculations for acreage (the City of Greensboro uses calendar year), from 1990-2000, persons per gross acre in Greensboro declined from 3.6 to 3.34 (as shown on Table 3-4), the result of increases in both population and land area.

As shown on Table 3-1, between 1990 and 2000, the population of the City of Greensboro grew from 183,894 to 223,891 people. According to the Greensboro Planning Department and the United States Census Bureau, Greensboro's population increased annually from 1990 to 2000. In 1995, there was a population increase of an estimated 2.2 percent and in 1997, there was an estimated 4.3 percent rise. In 2000, the population gained over 15,000 persons (7.2 percent), based on the 1999 estimate. As shown on Table 3-8, much of Greensboro's population growth over the decade was the result of annexation (16,401 people).

From 1990 to 2000, Greensboro's population increased by 21.8 percent, with an urban growth rate (excluding annexation) of 11.4 percent. During the same time period, the population of Durham increased by 36.9 percent, with an urban growth rate of 18.6 percent, Charlotte's population increased by 36.6 percent, with an urban growth rate of 13.8 percent, Raleigh's population increased by 30.2 percent, with an urban growth rate of 10.8 percent, Winston-Salem's population increased by 29.5 percent, with an urban growth rate of 10.7 percent, and High Point's population increased by 23.6 percent, with an urban growth rate of 13.4 percent.

In Charlotte, Durham, and Greensboro, the population density declined between 1990 and 2000, while in High Point, and Winston-Salem, the population density was higher in 2000 than in 1990.

According to the 1990 Census, among all comparison cities, Knoxville, TN had the lowest number of persons per household, at 2.20, while Montgomery, AL had the highest, at 2.59. Of the North Carolina comparison cities, High Point and Charlotte had the highest number of persons per household, 2.46 and 2.45 respectively. The lowest numbers of persons per household were in Raleigh, at 2.26, and Winston-Salem, at 2.27. Greensboro had 2.33 persons per household.

Age, Race, and Ethnic Origin

Between 1990 and 2000, the number of Black persons and American Indian persons in Greensboro grew at a higher rate than any other race, 34.3 percent and 27 percent, respectively. During the same time period, the number of Asians increased tremendously, although it is difficult to calculate either numbers or percentages by way of comparing 1990 with 2000, due to different data collection and reporting methods used by the Census Bureau for each decade. These difficulties are apparent in many racial categories. In Census 2000, people were allowed to report themselves as being of one race alone, or as being of more than one race for the first time. In addition, many racial categories were altered. For example, in 1990 one category was Asian and Pacific Islander. In 2000, it was split into Asian alone and Native Hawaiian and Other Pacific Islander alone. Those reporting Hispanic or Latino ethnic origin (can be of any race) experienced a growth change from 1990 to 2000 of 601.4 percent.

Geographically in 1990, Census Tracts within Guilford County with the highest minority populations were found primarily on the eastern side of Greensboro and in central High Point.

According to the US Census, from 1960 to 1990, Greensboro's median age increased from 26.9 to 32.2. Older Americans, those aged 65 years and older, was the fastest growing age group in Greensboro, increasing from five percent to 12 percent. In 1990, the largest proportion of the City's population was in the 25-34 age group (19 percent) and the 35-44 age group (15 percent). The third highest proportion was the 0-9 age group (12 percent). Generally, Greensboro's median age has been increasing since the 1970s, meaning that the City's population is aging; the median age was 32.2 in 1990.

According to the Office of State Planning, between 1990 and 2000 in Guilford County, the number of persons in the 18-34 year age group declined by almost 9,000 persons, a decrease of 8.5 percent.

Education

In 1990, 79 percent of Guilford County adults had a high school diploma or higher. Thirty percent of Guilford County adults had a bachelor's degree or higher.

Income

According to the 1990 Census, median family income in Greensboro was below that of Raleigh and Charlotte, but above that of Durham, Winston-Salem, and High Point. Median family income in Greensboro was also higher than all of the out-of-state comparison cities.

Housing

In 1990, 53.7 percent of Guilford County's residents lived in homes they owned, while 46.3 percent rented the homes they lived in. Among all White heads of household, 61.2 percent lived in homes they owned, while 38.6 percent of all Asian or Pacific Islander heads of household lived in homes they owned. Black heads of household lived in homes they owned at a rate of 37.4 percent, followed by American Indian, Eskimo, or Aleut heads of household, at 32.7 percent.

In the same year, among those who reported themselves as being of Hispanic Origin (an ethnic distinction, so the person can be of any race), 39.7 percent lived in homes they owned.

Geographically, homeownership rates were found to be highest in Census Tracts in the northwestern quadrant of Greensboro, and in Guilford County itself outside of the cities of Greensboro and High Point.

Poverty

According to the 1990 Census, 11.6 percent of all persons in the City of Greensboro lived in poverty, of which 12.1 percent were 65 years old and older. The greatest percentage, however, was in the 18-24 age group with 23.1 percent. The Census also reported that 6.8 percent of the City's White population and 20.7 percent of the Black population were living below the poverty level.

Of the 11.6 percent of Greensboro residents living in poverty in 1990, 47 percent were female householders with preschool-aged children.

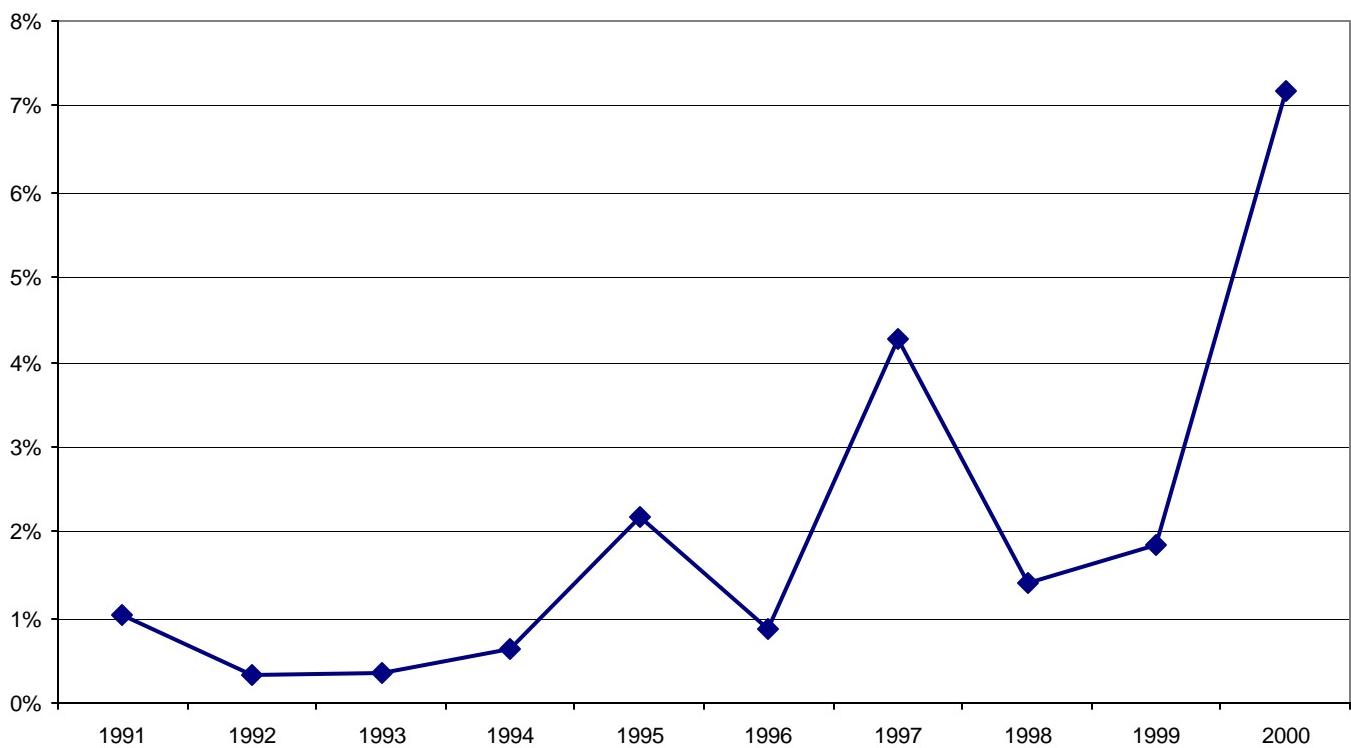
Several factors distinguish the remainder of Greater Greensboro from its poorest zip code. Conditions in the poorest zip code include a lower home ownership rate, a higher percentage of minorities, an unemployment rate nearly three times higher, and a higher number of people with less than a high school education.

Table 3-1: Greensboro Annual Population Growth, 1990-2000

Year	Number*	Number Change	Percent Annual Change
1990	183,894	NA	NA
1991	185,789	1,895	1.0%
1992	186,392	603	0.3%
1993	187,050	658	0.4%
1994	188,228	1,178	0.6%
1995	192,330	4,102	2.2%
1996	194,020	1,690	0.9%
1997	202,321	8,301	4.3%
1998	205,132	2,811	1.4%
1999	208,887	3,755	1.8%
2000	223,891	15,004	7.2%

Source: *Greensboro Planning Department estimates; 1990 population from 1990 Census of Population & Housing; 2000 population from 2000 Census of Population & Housing.

Figure 3-1: Greensboro Annual Percent Population Change, 1991-2000



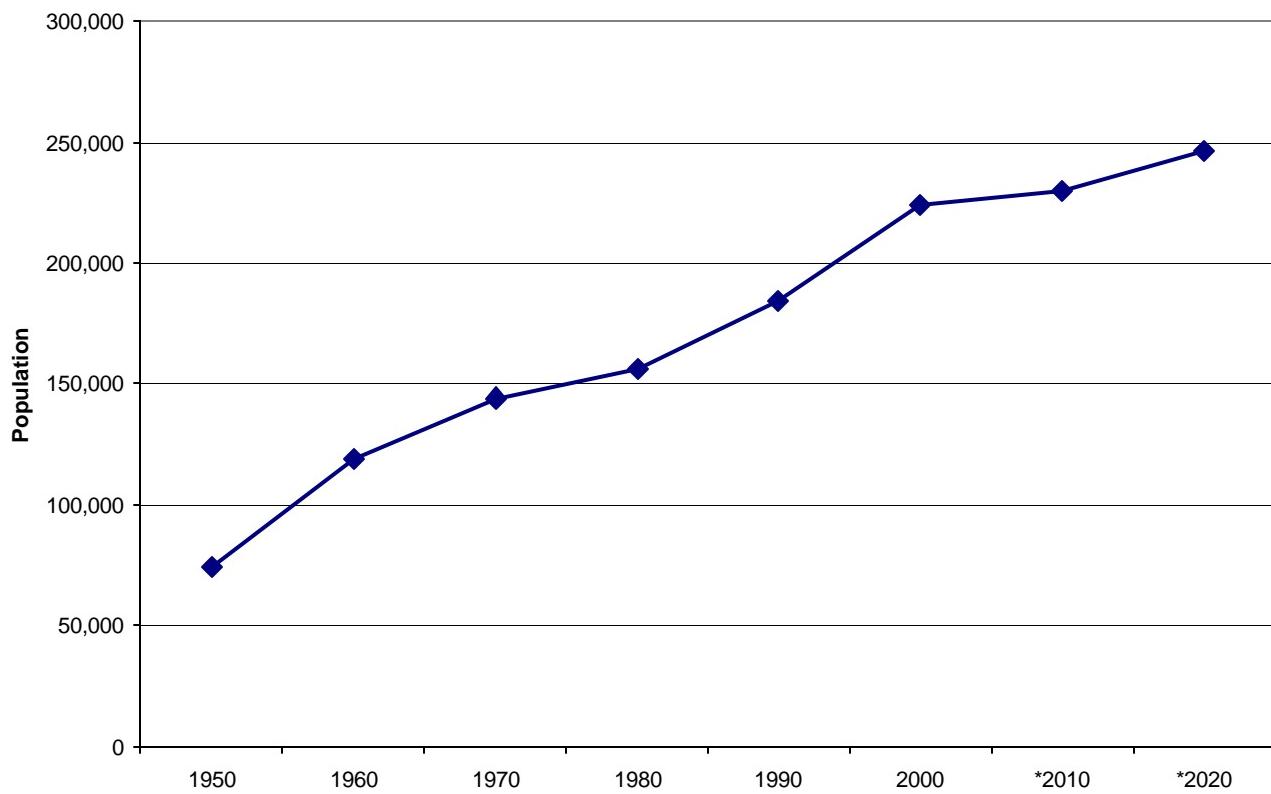
Source: 1990 population from 1990 Census of Population & Housing; 2000 population from 2000 Census of Population & Housing.

Table 3-2: Greensboro Historical and Projected Population 1950-2020

Year	Population	Growth	Percent Growth	Land Area (Acres)	Persons Per Gross Acre
1950	74,389	NA	NA	11,646	6.4
1960	119,574	45,185	60.7%	31,802	3.8
1970	144,076	24,502	20.5%	35,027	4.1
1980	155,642	11,566	8.0%	38,852	4.0
1990	183,894	28,252	18.2%	52,344	3.5
2000	223,891	34,997	21.8%	71,854	3.1
*2010	229,916	9,749	4.4%	NA	NA
*2020	246,829	11,913	7.4%	NA	NA

Source: US Census Bureau, Population & Housing, 1950-2000. *Greensboro Planning Dept. estimates, calculated prior to release of 2000 Census population figures.

Figure 3-2: Greensboro Historical and Projected Population, 1950-2020



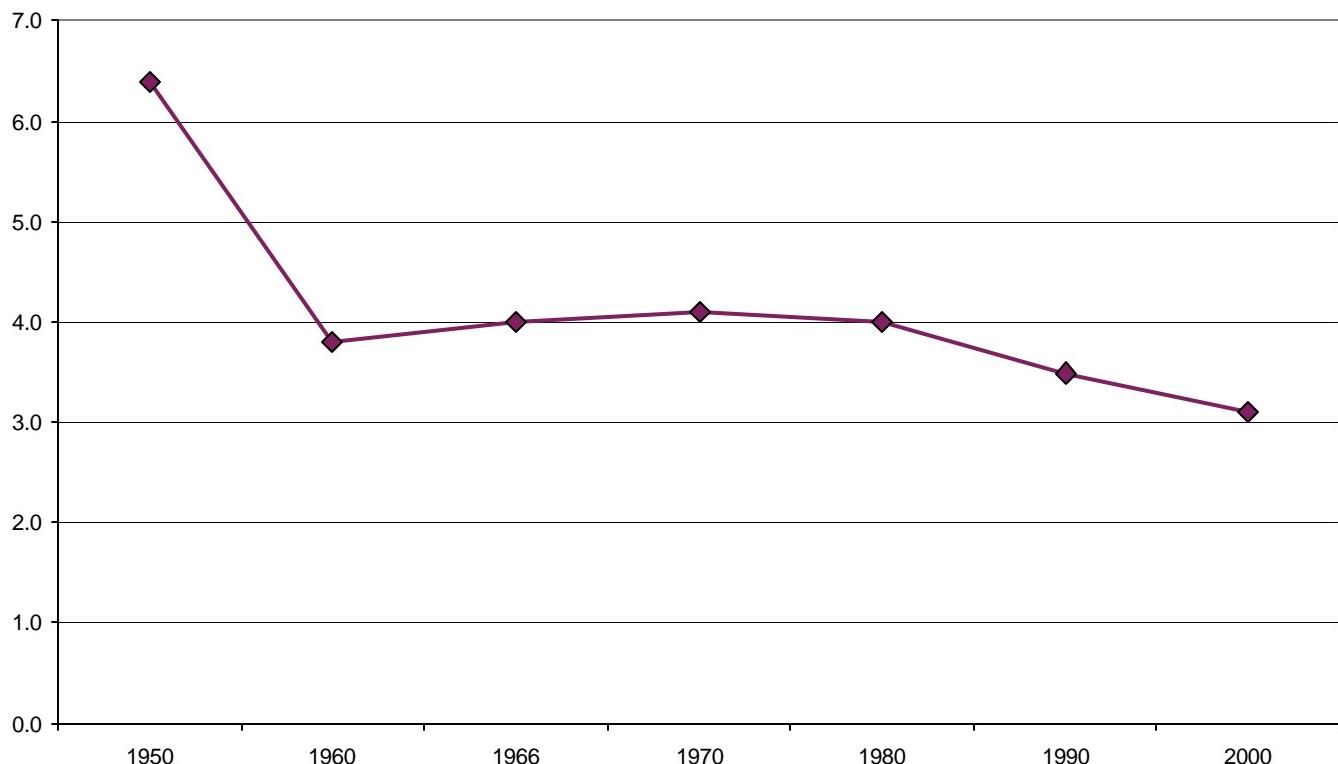
Source: US Census Bureau, Population & Housing, 1950-2000. *Greensboro Planning Dept. estimates, 2000.

Table 3-3: Greensboro Population Density and Acreage, 1950-2000

Year (April 1)	Population	Land Area (Acres)	Persons/ Gross Acre
1950	74,389	11,646	6.4
1960	119,574	31,802	3.8
1966	131,171	33,150	4.0
1970	144,076	35,027	4.1
1980	155,642	38,852	4.0
1990	183,894	52,344	3.5
2000	223,891	71,854	3.1

Source: US Census Bureau, 1950-2000 Census of Population & Housing.

Figure 3-3: Greensboro Persons Per Gross Acre, 1950-2000



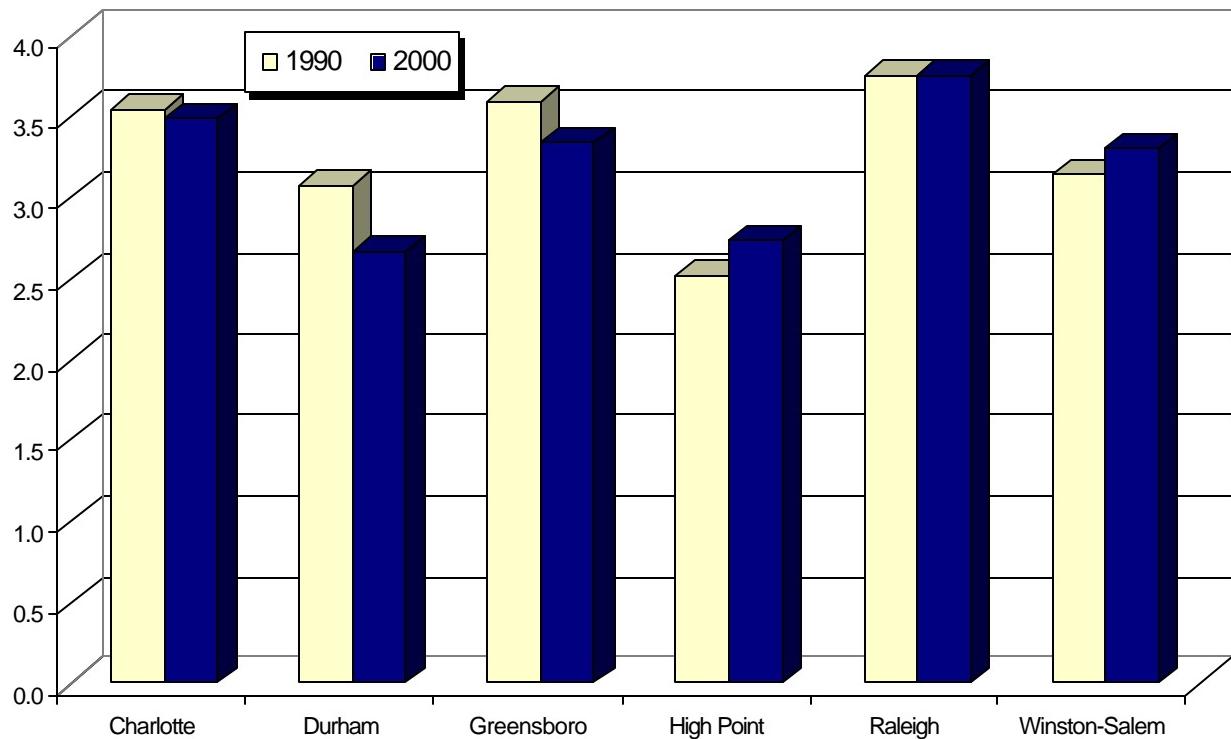
Source: US Census Bureau, 1950-2000 Census of Population & Housing.

Table 3-4: Population Densities of Selected North Carolina Municipalities, 1990-2000

NC Municipalities	1990			2000		
	Total Acreage	Total Population	Persons Per Gross Acre	Total Acreage	Total Population	Persons Per Gross Acre
Charlotte	111,507.20	395,934	3.55	155,052.16	540,828	3.49
Durham	44,326.40	136,612	3.08	60,567.04	187,035	2.67
Greensboro	51,059.20	183,894	3.60	67,011.20	223,891	3.34
High Point	27,513.60	69,428	2.52	31,392.00	85,839	2.73
Raleigh	56,396.80	212,092	3.76	73,345.92	276,093	3.76
Winston-Salem	45,510.40	143,485	3.15	69,667.20	185,776	3.30

Source: NC Office of State Planning. Note: The State uses fiscal year calculations on acreage, while the City of Greensboro uses calendar year. Also, State figures do not include lakes in acreage calculations.

Figure 3-4: Population Densities of Selected North Carolina Municipalities, 1990-2000



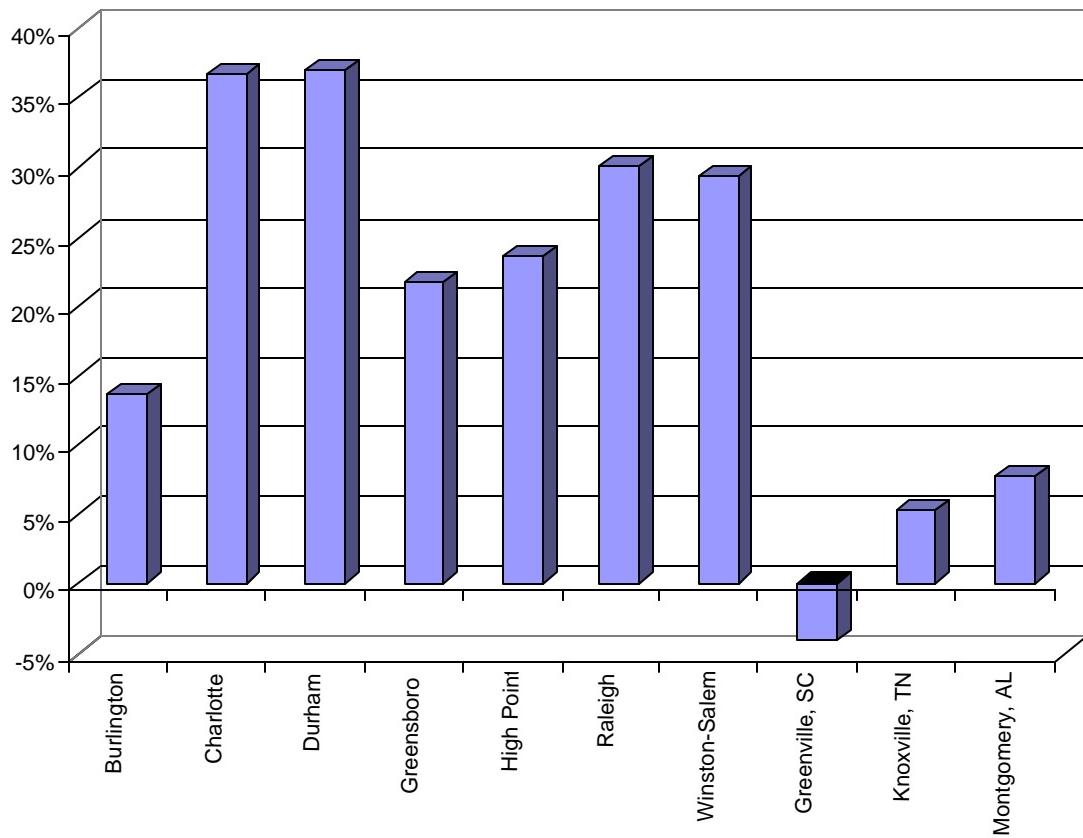
Source: NC Office of State Planning. Note: The State uses fiscal year calculations on acreage, while the City of Greensboro uses calendar year. Also, State figures do not include lakes in acreage calculations.

Table 3-5: Population for Selected Municipalities, 1990-2000

NC Municipalities	1990	2000	Numeric Change	Percent Change
Burlington	39,498	44,917	5,419	13.7%
Charlotte	395,934	540,828	144,894	36.6%
Durham	136,612	187,035	50,423	36.9%
Greensboro	183,894	223,891	39,997	21.8%
High Point	69,428	85,839	16,411	23.6%
Raleigh	212,092	276,093	64,001	30.2%
Winston-Salem	143,485	185,776	42,291	29.5%
Out-of-State Municipalities				
Greenville, SC	58,282	56,002	-2,280	-3.9%
Knoxville, TN	165,121	173,890	8,769	5.3%
Montgomery, AL	187,106	201,568	14,462	7.7%

Source: US Census Bureau, 1990-2000 Population & Housing.

Figure 3-5: Population for Selected Municipalities, Percent Change 1990-2000



Source: US Census Bureau, 1990-2000 Population & Housing.

Table 3-6: Population Increase in Selected NC Municipalities by Type of Growth, 1990-1999

NC Municipalities	Total Population Growth, 1990-1999	Population Growth through Annexation	Natural Increase (Births less Deaths)	Net Migration (persons moving in less persons moving out)	Urban Growth (migration + natural increase)	Urban Growth Rate (urban growth / 1990 population)	1990 Population
Charlotte	130,311	81,245	36,848	12,218	49,066	12.4%	395,934
Durham	32,565	19,201	11,180	2,184	13,364	9.8%	136,612
Greensboro	24,316	16,401	10,218	-2,303	7,915	4.3%	183,894
High Point	8,158	5,703	3,055	-600	2,455	3.5%	69,428
Raleigh	61,111	38,195	18,208	4,708	22,916	10.8%	212,092
Winston-Salem	30,083	25,092	7,735	-2,744	4,991	3.5%	143,485

Source: NC Office of State Planning, natural increase numbers from the NC State Center for Health Statistics, 1991-2000.

Table 3-7: Percent of Population Increase in Selected NC Municipalities by the Type of Growth, 1990-1999

NC Municipalities	Total Population Growth, 1990-1999	Population Growth through Annexation	Natural Increase (Births less Deaths)	Net Migration (persons moving in less persons moving out)	Urban Growth (migration + natural increase)	Urban Growth Rate (urban growth / 1990 population)
Charlotte	32.9%	20.5%	9.3%	3.10%	12.4%	12.4%
Durham	23.8%	14.1%	8.2%	1.60%	9.8%	9.8%
Greensboro	13.2%	8.9%	5.6%	-1.30%	4.3%	4.3%
High Point	11.8%	8.2%	4.4%	-0.90%	3.5%	3.5%
Raleigh	28.8%	18.0%	8.6%	2.20%	10.8%	10.8%
Winston-Salem	21.0%	17.5%	5.4%	-1.90%	3.5%	3.5%

Source: NC Office of State Planning, natural increase numbers from the NC State Center for Health Statistics, 1991-2000.

Figure 3-6: Percent of Population Increase in Selected NC Municipalities by the Type of Growth, 1999-2000

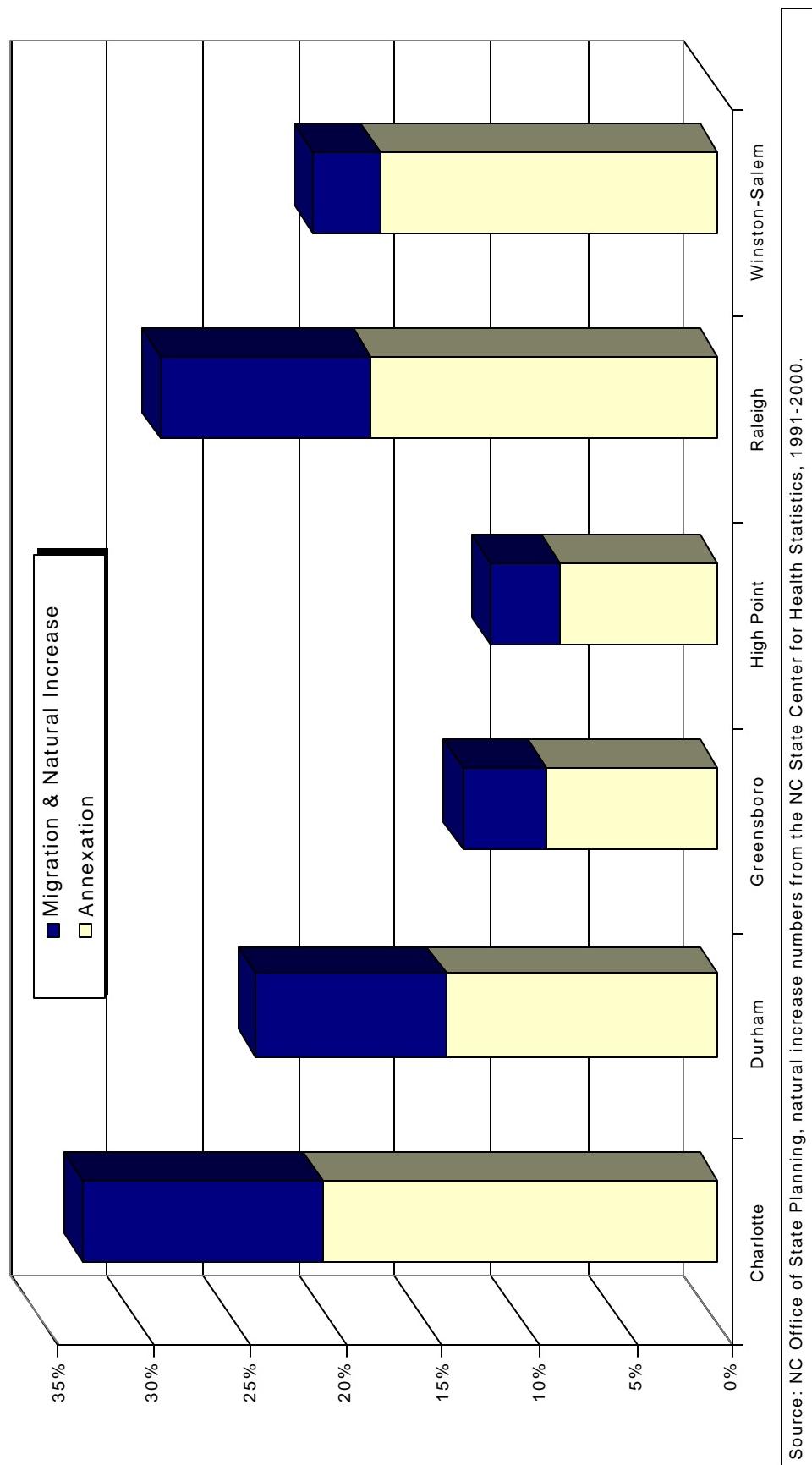
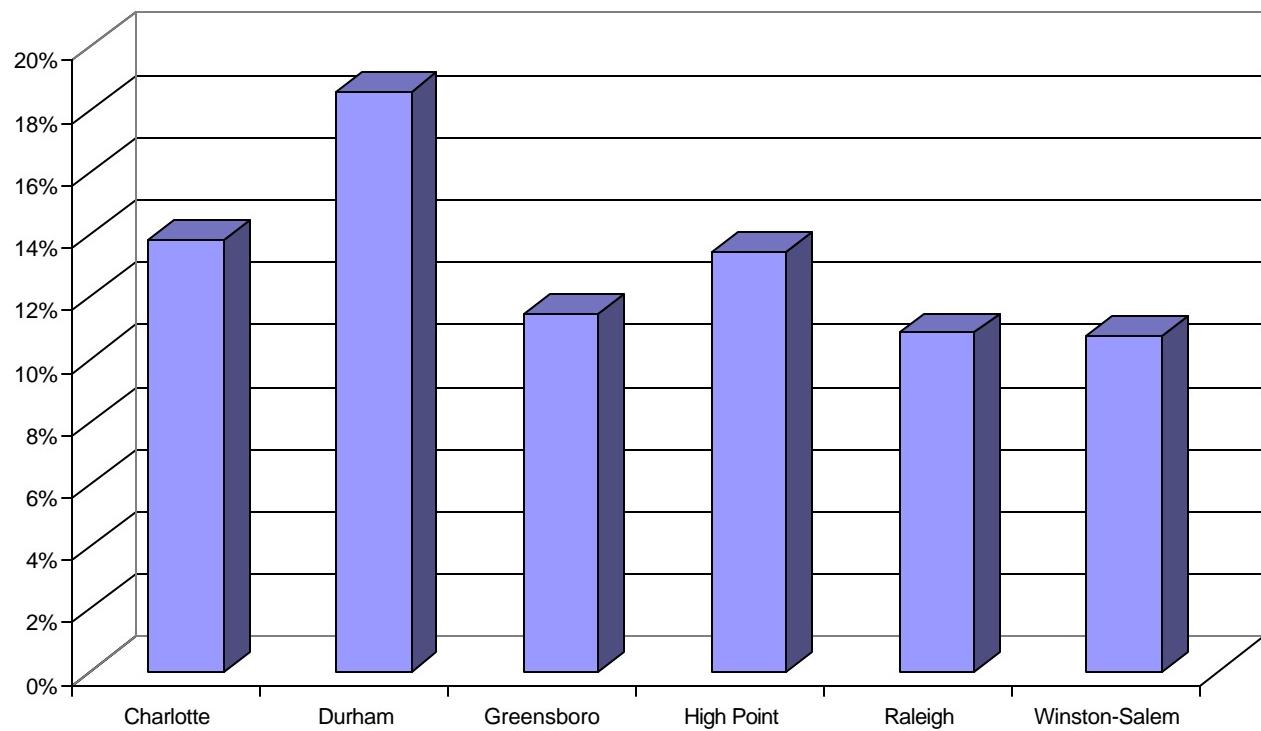


Table 3-8: Urban Growth Rates of Selected Municipalities, 1990-2000

NC Municipalities	1990 Population	2000 Population	Annexed Population	Urban Growth	Population Increase	Urban Growth Rate
Charlotte	395,934	540,828	81,245	63,649	36.6%	13.8%
Durham	136,612	187,035	19,201	31,222	36.9%	18.6%
Greensboro	183,894	223,891	16,401	23,596	21.8%	11.4%
High Point	69,428	85,839	5,703	10,708	23.6%	13.4%
Raleigh	212,092	276,093	38,195	25,806	30.2%	10.8%
Winston-Salem	143,485	185,776	25,092	17,199	29.5%	10.7%

Source: NC Office of State Planning, 2000.

Figure 3-7: Urban Growth Rates of Selected Municipalities, 1990-2000

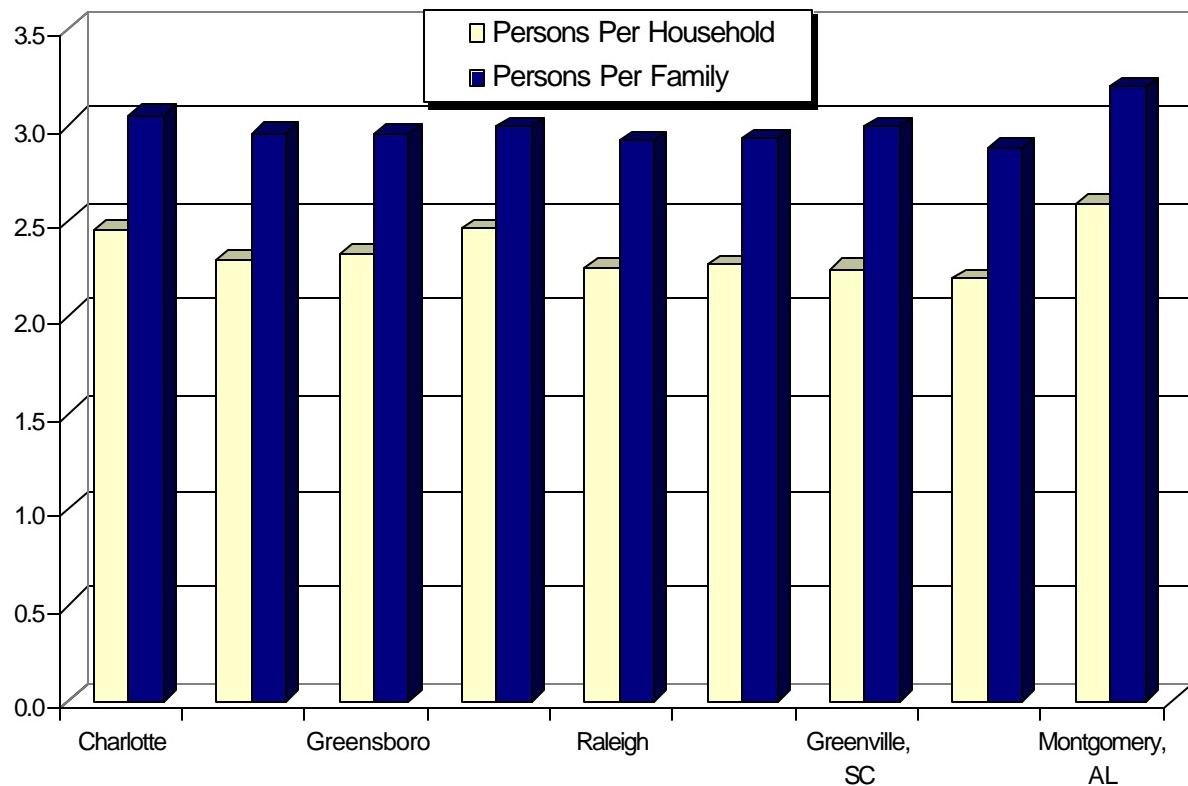


Source: NC Office of State Planning, 2000.

Table 3-9: Family and Household Size for Selected Municipalities, 1990		
Municipalities	Persons Per:	
	Household	Family
Charlotte	2.45	3.05
Durham	2.30	2.96
Greensboro	2.33	2.95
High Point	2.46	2.99
Raleigh	2.26	2.92
Winston-Salem	2.27	2.93
Out-of-State Municipalities		
Greenville, SC	2.25	2.99
Knoxville, TN	2.20	2.88
Montgomery, AL	2.59	3.20

Source: US Census Bureau, 1990 Census of Population & Housing.

Figure 3-8: Family and Household Size for Selected Municipalities, 1990



Source: US Census Bureau, 1990 Census of Population & Housing.

Table 3-10: Greensboro Vital Statistics, 1980-1999

Year	Number of Births	Number of Deaths	Natural Increase
1980	2,140	1,244	896
1981	2,077	1,292	785
1982	2,139	1,293	846
1983	2,044	1,323	721
1984	2,057	1,360	697
1985	2,374	1,490	884
1986	2,490	1,533	957
1987	2,446	1,579	867
1988	2,744	1,586	1,158
1989	2,903	1,655	1,248
1990	2,812	1,604	1,208
1991	2,867	1,622	1,245
1992	2,839	1,696	1,143
1993	2,715	1,744	971
1994	2,750	1,703	1,047
1995	2,858	1,770	1,088
1996	2,908	1,823	1,085
1997	2,931	1,801	1,130
1998	3,097	1,796	1,301
1999	3,236	1,871	1,365

Source: NC Dept. of Public Health, Vital Statistics Section, 2000.

Figure 3-9: Greensboro Vital Statistics, 1980-1999

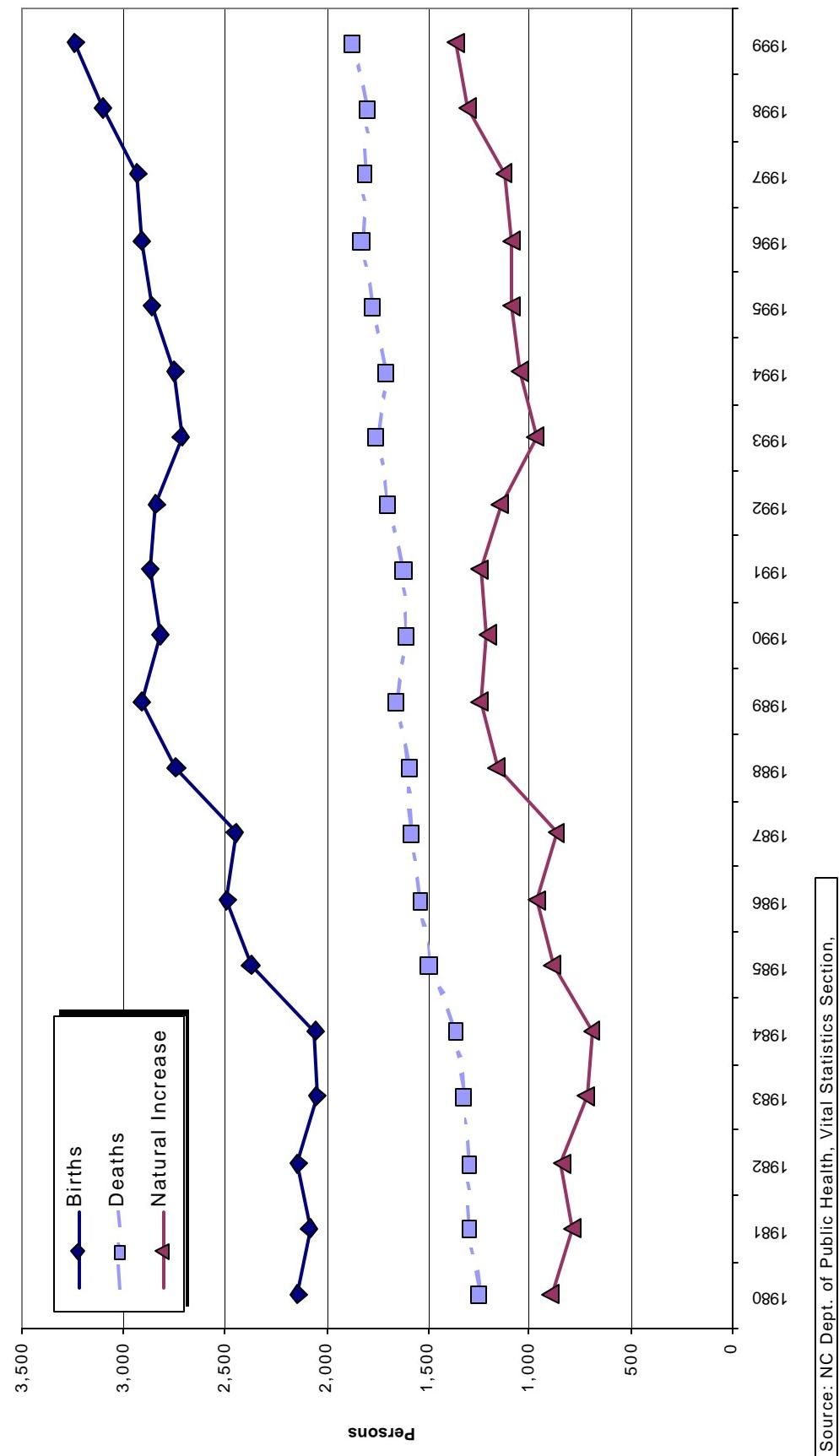
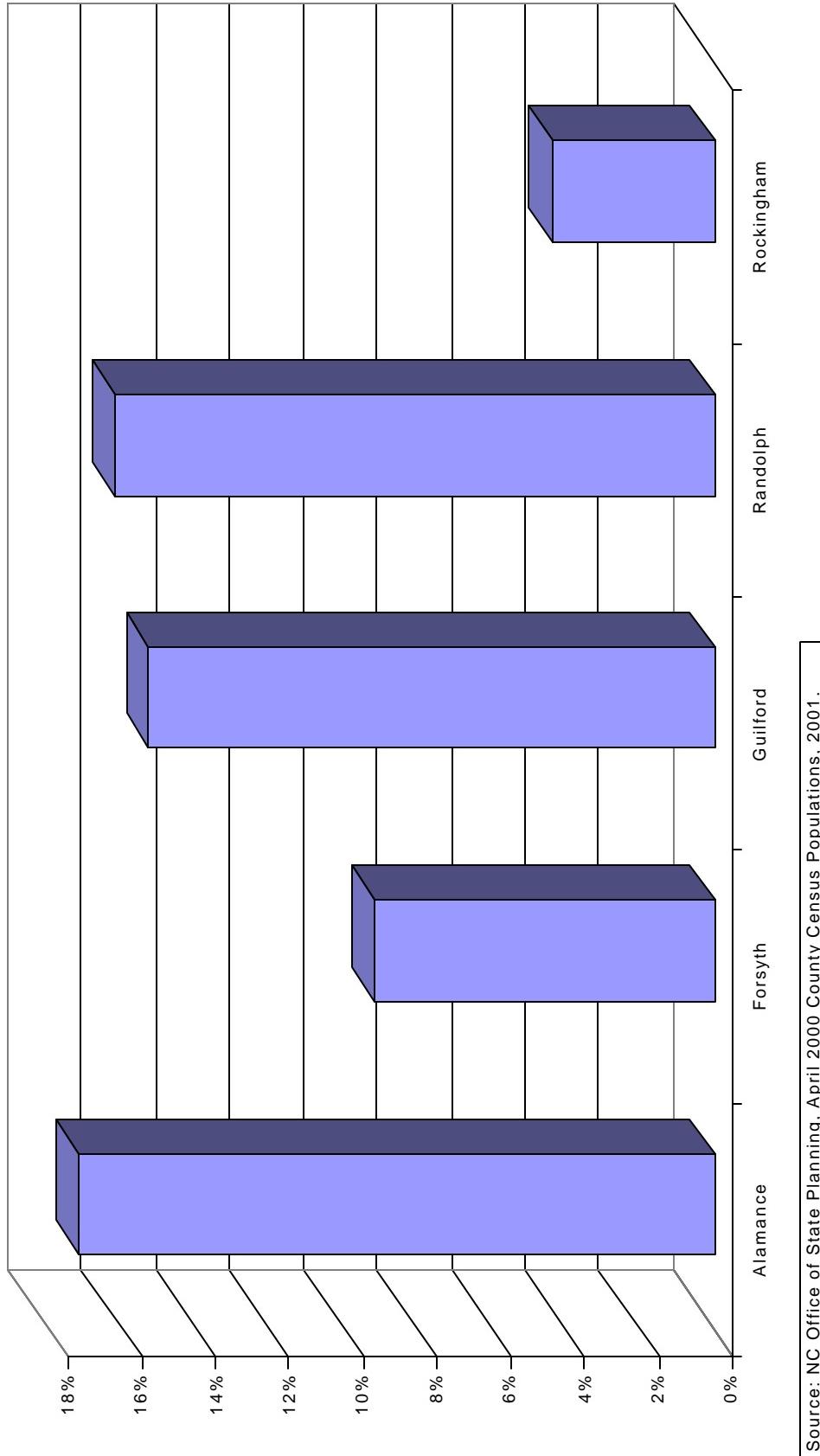


Table 3-11: Comparison County Growth and Migration, 1990-2000

County	Population			Growth			Amount of Growth, 1990-2000			Net Migration	
	1990	2000	Number	Percent	Births	Deaths	Natural Growth	Number	Percent		
Alamance	108,213	130,800	22,587	20.9%	15,634	11,698	3,936	18,651	17.2%		
Forsyth	265,855	306,067	40,212	15.1%	41,208	25,521	15,687	24,525	9.2%		
Guilford	347,431	421,048	73,617	21.2%	53,010	32,490	20,520	53,097	15.3%		
Randolph	106,546	130,454	23,908	22.4%	16,219	9,586	6,633	17,275	16.2%		
Rockingham	86,064	91,928	5,864	6.8%	11,526	9,411	2,115	3,749	4.4%		

Source: NC Office of State Planning, April 2000 County Census Populations, 2001.

Figure 3-10: Comparison County Percent Net Migration Growth, 1990-2000

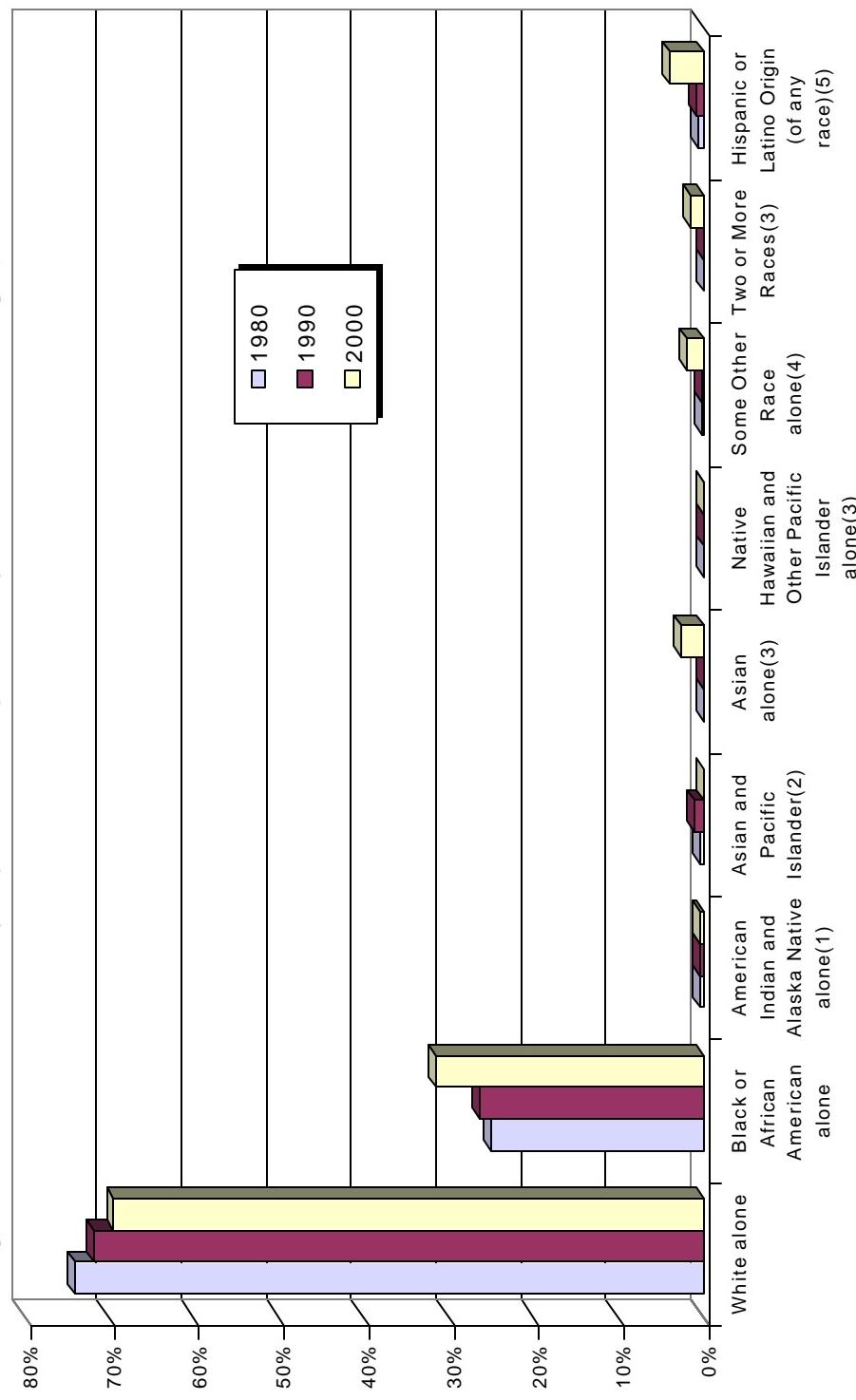


Source: NC Office of State Planning, April 2000 County Census Populations, 2001.

Table 3-12: Guilford County Population Composition by Race and Ethnic Origin, 1980-2000							
	1980		1990		2000		Percent Change, 1990-2000
	Number	Percent	Number	Percent	Number	Percent	
White alone	234,579	74.0%	249,584	71.8%	271,686	69.4%	8.9%
Black or African American alone	79,374	25.0%	91,655	26.4%	123,253	31.5%	34.5%
American Indian and Alaska Native alone(1)	1,348	0.4%	1,637	0.5%	1,944	0.5%	18.8%
Asian and Pacific Islander(2)	1,107	0.3%	3,726	1.1%	NA	NA	NA
Asian alone(3)	NA	NA	NA	NA	10,294	2.6%	NA
Native Hawaiian and Other Pacific Islander alone(3)	NA	NA	NA	NA	130	0.0%	NA
Some Other Race alone(4)	746	0.2%	818	0.2%	7,615	1.9%	830.9%
Two or More Races(3)	NA	NA	NA	NA	6,126	1.6%	NA
Total	317,154	100.0%	347,420	100.0%	421,048	100.0%	32.8%
Hispanic or Latino Origin (of any race)(5)	2,404	0.8%	2,887	0.8%	15,985	4.1%	564.9%

Source: US Census Bureau, 1980, 1990, & 2000 Census of Population & Housing. (1)In previous Censuses, this category was referred to as: "American Indian, Eskimo, Aleut". (2)This category was split into "Asian alone" & "Native Hawaiian and Other Pacific Islander alone" for the 2000 Census. (3)New category for the 2000 Census. (4)This category was "Other" previous to the 2000 Census. (5)This category was "Hispanic Origin (any race)" previous to the 2000 Census. Note: All categories include Hispanic or Latino Origin.

Figure 3-11: Guilford County Population Composition by Race and Ethnic Origin, 1980-2000



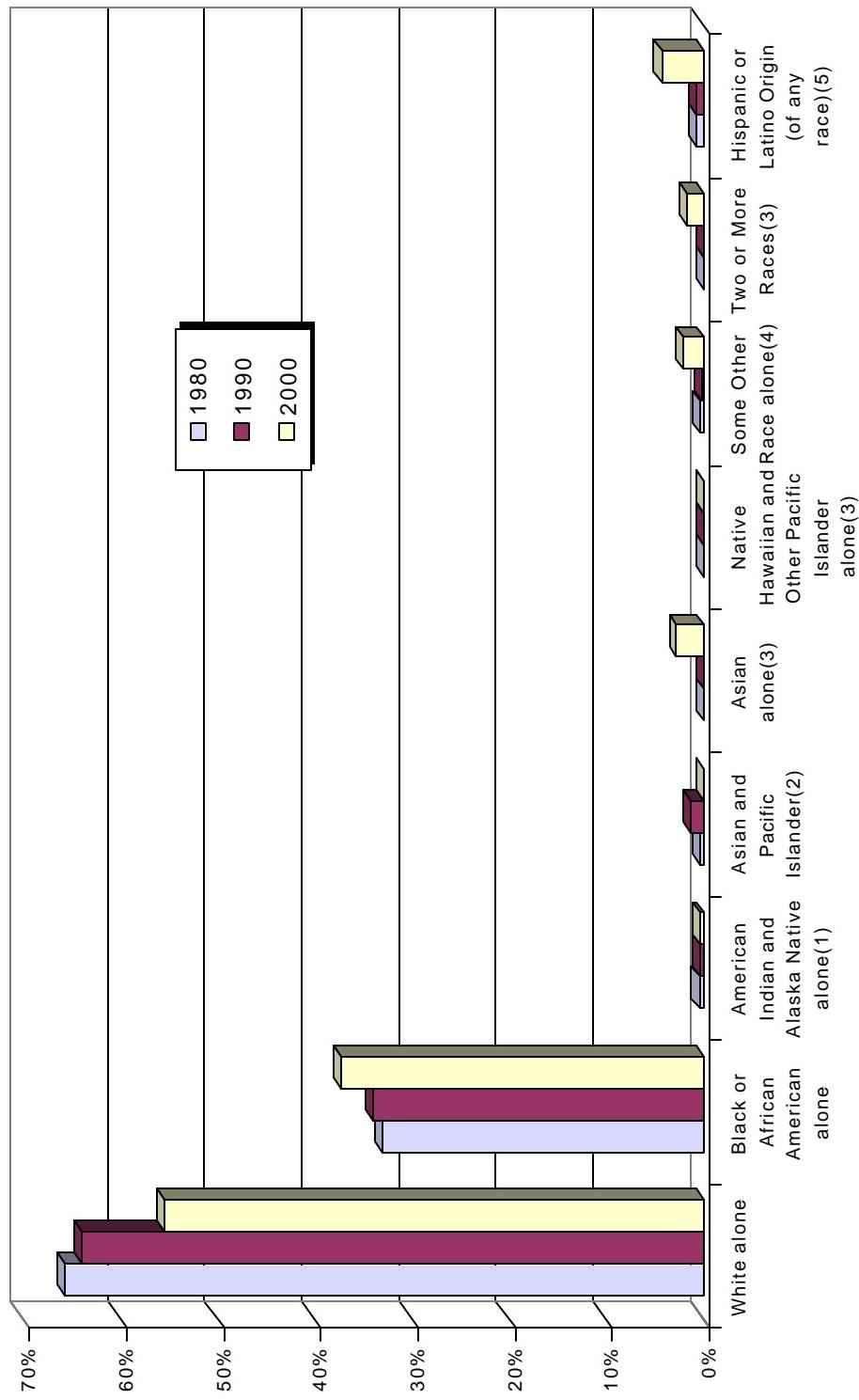
Source: US Census Bureau, 1980, 1990, & 2000 Census of Population & Housing. (1)In previous Censuses, this category was referred to as: "American Indian, Eskimo, Aleut". (2) This category was split into "Asian alone" & "Native Hawaiian and Other Pacific Islander alone" for the 2000 Census. (3)New category for the 2000 Census. (4)This category was "Other" previous to the 2000 Census. (5)This category was "Hispanic Origin (any race)" previous to the 2000 Census. Note: All categories include Hispanic or Latino Origin

Table 3-13: Greensboro Population Composition by Race and Ethnic Origin, 1990-2000

Race or Ethnic Origin	1980 Number	1980 Percent	1990 Number	1990 Percent	2000 Number	2000 Percent	Percent Change, 1990-2000
White alone	102,320	65.7%	117,349	64.0%	124,243	55.5%	5.9%
Black or African American alone	51,373	33.0%	62,356	34.0%	83,728	37.4%	34.3%
American Indian and Alaska Native alone(1)	768	0.5%	779	0.4%	989	0.4%	27.0%
Asian and Pacific Islander(2)	680	0.4%	2,573	1.4%	NA	NA	NA
Asian alone(3)	NA	NA	NA	NA	6,357	2.8%	NA
Native Hawaiian and Other Pacific Islander alone(3)	NA	NA	NA	NA	89	0.0%	NA
Some Other Race alone(4)	501	0.4%	464	0.2%	4,647	2.1%	901.5%
Two or More Races(3)	NA	NA	NA	NA	3,838	1.7%	NA
Total	155,642	100.0%	183,521	100.0%	223,891	100.0%	22.0%
Hispanic or Latino Origin (of any race)(5)	1,201	0.8%	1,389	0.8%	9,742	4.4%	601.4%

Source: US Census Bureau, 1980, 1990, & 2000 Census of Population & Housing. (1)In previous Censuses, this category was referred to as: "American Indian, Eskimo, Aleut". (2)This category was split into "Asian alone" & "Native Hawaiian and Other Pacific Islander alone" for the 2000 Census. (3)New category for the 2000 Census. (4)This category was "Other" previous to the 2000 Census. (5)This category was "Hispanic Origin (any race)" previous to the 2000 Census. Note: All categories include Hispanic or Latino Origin. Also, total number for 1990: population derived from the original Census number. Detailed tables regarding race did not change to reflect revised number.

Figure 3-12: Greensboro Population Composition by Race and Ethnic Origin, 1980-2000

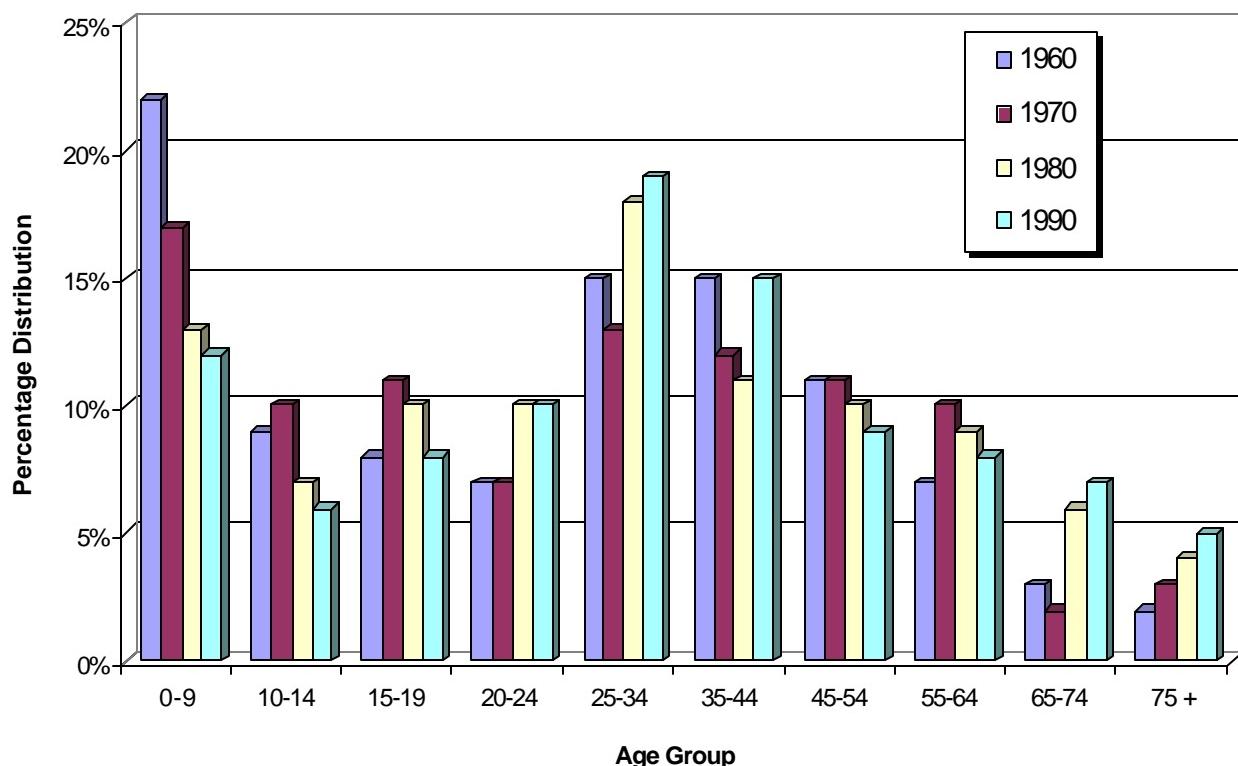


Source: US Census Bureau, 1980, 1990, & 2000 Census of Population & Housing. (1)In previous Censuses, this category was referred to as: "American Indian, Eskimo, Aleut". (2)This category was split into "Asian alone" & "Native Hawaiian and Other Pacific Islander alone" for the 2000 Census. (3)New category for the 2000 Census. (4)This category was "Other" previous to the 2000 Census. (5)This category was "Hispanic Origin (any race)" previous to the 2000 Census. Note: All categories include Hispanic or Latino Origin.

Table 3-14: Greensboro Population by Age, 1960-1990								
Age Groups	1960		1970		1980		1990	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0-9	26,483	22%	25,591	17%	20,100	13%	22,353	12%
10-14	10,791	9%	13,861	10%	11,712	7%	10,673	6%
15-19	9,919	8%	15,696	11%	15,676	10%	14,533	8%
20-24	8,601	7%	10,616	7%	14,978	10%	17,745	10%
25-34	17,989	15%	19,254	13%	27,631	18%	34,034	19%
35-44	17,072	15%	17,132	12%	16,579	11%	28,043	15%
45-54	12,540	11%	15,694	11%	15,651	10%	17,898	9%
55-64	8,548	7%	11,011	10%	14,270	9%	15,113	8%
65-74	4,784	3%	6,733	2%	9,593	6%	12,776	7%
75 +	2,186	2%	3,721	3%	5,694	4%	8,855	5%
Total Population	119,574	100%	144,076	100%	155,642	100%	183,521	100%
Median Age	26.9		25.7		28.9		32.2	

Source: US Census Bureau, 1960-1990 Census of Population & Housing.

Figure 3-13: Greensboro Population by Age, 1960-1990



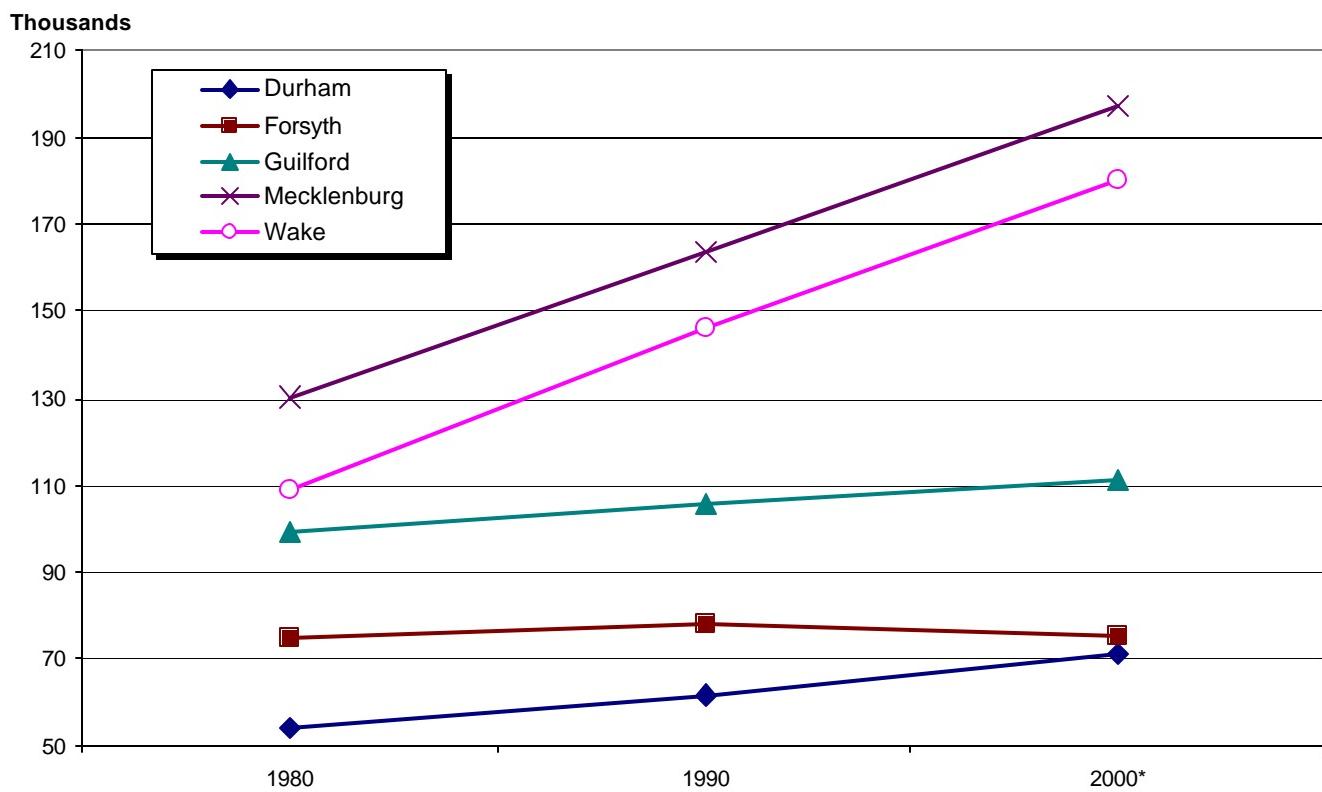
Source: US Census Bureau, 1960-1990 Census of Population & Housing.

Table 3-15: Changes in the Age Group 18-34 of Selected North Carolina Counties, 1980-2000

County	Census Numbers			Gain/ Loss			
				1980-1990		1990-2000	
	1980	1990	2000*	Number	Percent	Number	Percent
Durham	54,349	61,363	70,976	7,014	12.91%	9,613	15.7%
Forsyth	74,378	77,622	74,978	3,244	4.36%	-2,644	-3.4%
Guilford	99,087	105,543	111,389	6,456	6.52%	5,846	5.5%
Mecklenburg	130,279	163,462	197,603	33,183	25.47%	34,141	20.9%
Wake	109,116	146,062	180,323	36,946	33.86%	34,261	23.5%

Source: US Census Bureau, 1980-2000 Census of Population & Housing.

Figure 3-14: Changes in the Age Group 18-34 of Selected NC Counties, 1980-2000



Source: US Census Bureau, 1980-2000 Census of Population & Housing.

Table 3-16: Guilford County Homeownership Rates by Race and Ethnic Origin, 1990

Race or Ethnic Origin of Head of Household	Living in Owner Occupied Dwelling Units	Percent Living in Owner Occupied Units	Living in Renter Occupied Dwelling Units	Percent Living in Renter Occupied Units
White	31,443	61.2%	19,944	38.8%
Black	8,335	37.4%	13,972	62.6%
American Indian, Eskimo or Aleut	108	32.7%	222	67.3%
Asian, Pacific Islander	285	38.6%	454	61.4%
Other	30	21.1%	112	78.9%
Total	40,201	53.7%	34,704	46.3%
Hispanic Origin (Any Race)	229	39.7%	348	60.3%

Source: US Census Bureau, 1990 Census of Population & Housing, STF1A Files.

Table 3-17: Guilford County's Owner Occupied Dwellings by 1990 Census Tract

Census Tract	Percent Owner Occupied Dwellings	Census Tract	Percent Owner Occupied Dwellings	Census Tract	Percent Owner Occupied Dwellings
101	48.6%	126.04	55.0%	146	8.3%
102	40.3%	126.07	89.4%	151	86.0%
103	64.8%	126.08	23.4%	152	75.8%
104.01	63.3%	126.09	54.7%	153	83.2%
104.03	68.3%	126.10	72.3%	154	74.5%
104.04	93.9%	126.11	64.4%	155	67.5%
105	68.6%	126.12	70.2%	156	86.3%
106.01	60.4%	126.17	50.1%	157.01	41.9%
106.02	44.0%	127.03	45.0%	157.02	67.8%
107.01	44.0%	127.04	54.0%	157.03	60.6%
107.02	21.8%	127.05	67.8%	158	83.1%
108.01	3.3%	127.06	51.7%	159	82.9%
108.02	57.4%	127.07	43.0%	160.01	62.2%
109	20.9%	128.03	65.6%	160.02	69.9%
110	23.8%	128.04	53.0%	161.01	74.0%
111.01	20.5%	128.05	85.5%	161.02	38.2%
111.02	72.9%	136.01	70.8%	162.01	85.8%
112	36.8%	136.02	65.0%	162.02	88.6%
113	53.7%	137	75.5%	163	92.1%
114	28.3%	138	45.3%	164.01	85.1%
115	47.4%	139	20.4%	164.02	74.0%
116.01	58.5%	140	42.3%	165.01	75.2%
116.02	50.6%	142	41.8%	165.02	83.0%
119.04	31.8%	143	26.9%	166	78.4%
119.05	56.8%	144.02	54.2%	167	79.3%
125.03	78.0%	144.05	57.6%	168	81.0%
125.04	24.6%	144.06	68.8%	169	88.4%
125.05	96.5%	144.07	60.9%	170	86.8%
125.06	96.9%	144.08	31.0%	171	91.5%
125.08	80.4%	145.01	50.1%	172	87.5%
125.09	96.7%	145.02	55.2%		
126.01	22.5%	145.03	50.2%		

Source: US Census Bureau, 1990 Census of Population & Housing, & STF1A Files.

Table 3-18: Educational Attainment by Race and Ethnic Origin for Guilford County, 1990

Race or Ethnic Origin	Less Than 9th Grade Education	No High School Diploma	High School Graduate or Higher	Some College	Bachelor's Degree or Higher
White	5,161	13,451	67,001	49,316	28,138
Black	3,332	10,038	24,104	15,184	6,059
American Indian, Eskimo	109	222	274	167	85
Asian, Pacific Islander	256	424	949	803	600
Other	50	127	129	95	60
Total	8,908	24,262	92,457	65,565	34,942
Hispanic Origin (Any Race)	55	199	597	424	233

Source: US Census Bureau, 1990 Census of Population & Housing, STF3A files.

Table 3-19: Percent Educational Attainment by Race and Ethnic Origin for Guilford County, 1990

Race or Ethnic Origin	Percent With Less Than 9th Grade Education	Percent Without a High School Diploma	Percent High School Graduate or Higher	Percent With Some College	Percent With Bachelor's Degree or Higher
White	6.4%	16.7%	83.3%	61.3%	35.0%
Black	9.8%	29.4%	70.6%	44.5%	17.7%
American Indian, Eskimo	22.0%	44.8%	55.2%	33.7%	17.1%
Asian, Pacific Islander	18.6%	30.9%	69.1%	58.5%	43.7%
Other	19.5%	49.6%	50.4%	37.1%	23.4%
Total	7.6%	20.8%	79.2%	56.2%	29.9%
Hispanic Origin (Any Race)	6.9%	25.0%	75.0%	53.3%	29.3%

Source: US Census Bureau, 1990 Census of Population & Housing, STF3A Files.

Table 3-20: Guilford County's Percentage of High School Graduates
by 1990 Census Tract

Census Tract	Percent High School Graduates	Census Tract	Percent High School Graduates	Census Tract	Percent High School Graduates
101	58.2%	126.04	68.7%	146	48.7%
102	67.8%	126.07	96.4%	151	71.0%
103	52.9%	126.08	81.9%	152	63.7%
104.01	90.5%	126.09	80.1%	153	76.0%
104.03	90.1%	126.10	88.8%	154	68.0%
104.04	98.7%	126.11	76.7%	155	67.4%
105	88.7%	126.12	83.2%	156	77.0%
106.01	85.5%	126.17	75.5%	157.01	95.8%
106.02	89.2%	127.03	81.0%	157.02	90.6%
107.01	88.7%	127.04	69.7%	157.03	88.9%
107.02	91.5%	127.05	77.4%	158	77.1%
108.01	53.3%	127.06	67.0%	159	67.4%
108.02	84.2%	127.07	58.9%	160.01	90.0%
109	81.3%	128.03	64.5%	160.02	89.3%
110	68.4%	128.04	89.2%	161.01	93.8%
111.01	52.1%	128.05	72.0%	161.02	91.8%
111.02	63.6%	136.01	66.9%	162.01	71.0%
112	53.3%	136.02	65.2%	162.02	73.6%
113	62.4%	137	84.8%	163	87.0%
114	48.5%	138	59.7%	164.01	87.0%
115	60.3%	139	42.6%	164.02	84.0%
116.01	64.6%	140	58.7%	165.01	88.1%
116.02	63.8%	142	43.3%	165.02	88.0%
119.04	68.5%	143	37.3%	166	58.5%
119.05	58.5%	144.02	83.8%	167	73.7%
125.03	91.3%	144.05	82.6%	168	69.6%
125.04	88.0%	144.06	67.1%	169	76.9%
125.05	94.5%	144.07	89.2%	170	75.7%
125.06	97.6%	144.08	45.2%	171	87.2%
125.08	88.2%	145.01	43.6%	172	67.7%
125.09	94.8%	145.02	64.2%		
126.01	74.2%	145.03	51.9%		

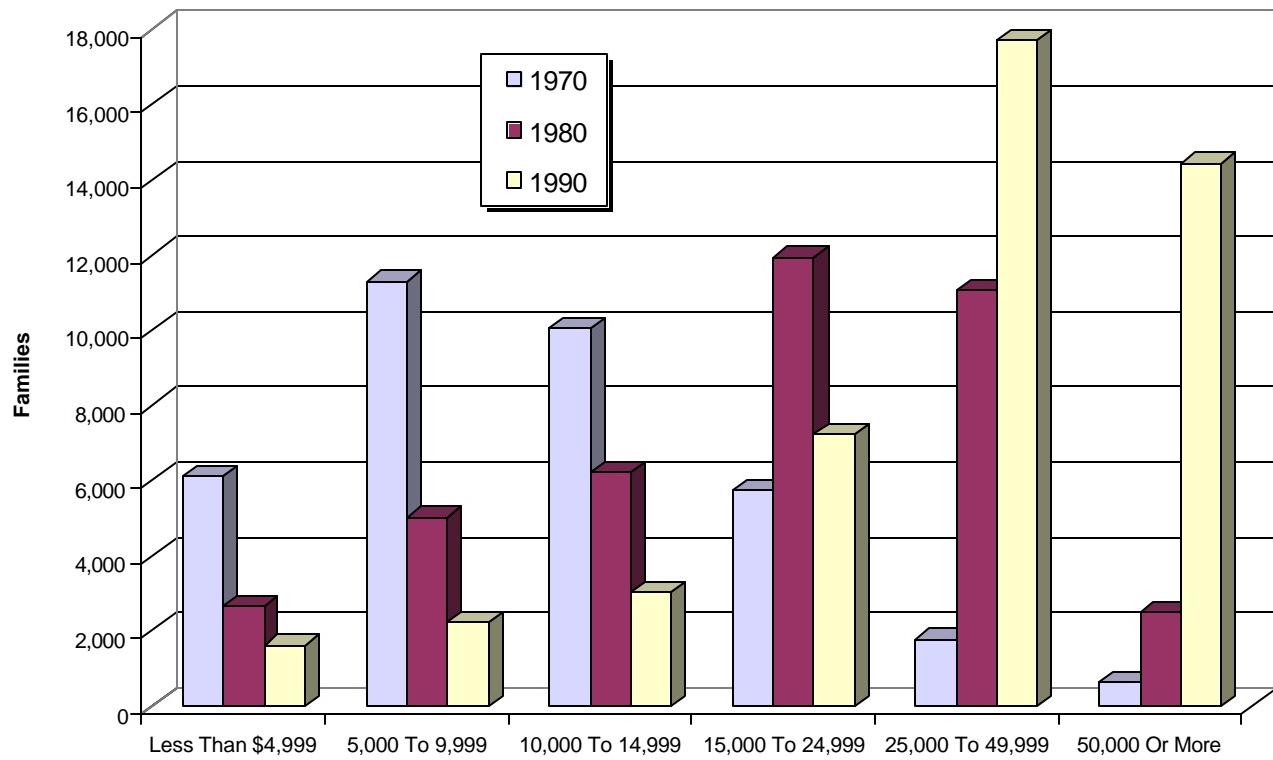
Source: US Census Bureau, 1990 Census of Population & Housing, STF3 Files.

Table 3-21: Greensboro Family Income 1970-1990

Range*	1970		1980		1990	
	Number	Percent	Number	Percent	Number	Percent
Less Than \$4,999	6,117	17.2	2,671	6.8	1,616	3.5
5,000 To 9,999	11,288	31.7	5,031	12.7	2,236	4.8
10,000 To 14,999	10,048	28.2	6,210	15.7	3,011	6.5
15,000 To 24,999	5,756	16.2	11,936	30.3	7,239	15.7
25,000 To 49,999	1,774	5.0	11,072	28.1	17,703	38.3
50,000 Or More	615	1.7	2,516	6.4	14,441	31.2
All Families	35,598	100.0%	39,436	100.0%	46,246	100.0%

Source: US Census Bureau, 1970-1990 Census Tracts for Greensboro-Winston-Salem-High Point MSA. *These ranges are based on 1990 dollars.

Figure 3-15: Greensboro Family Income, 1970-1990



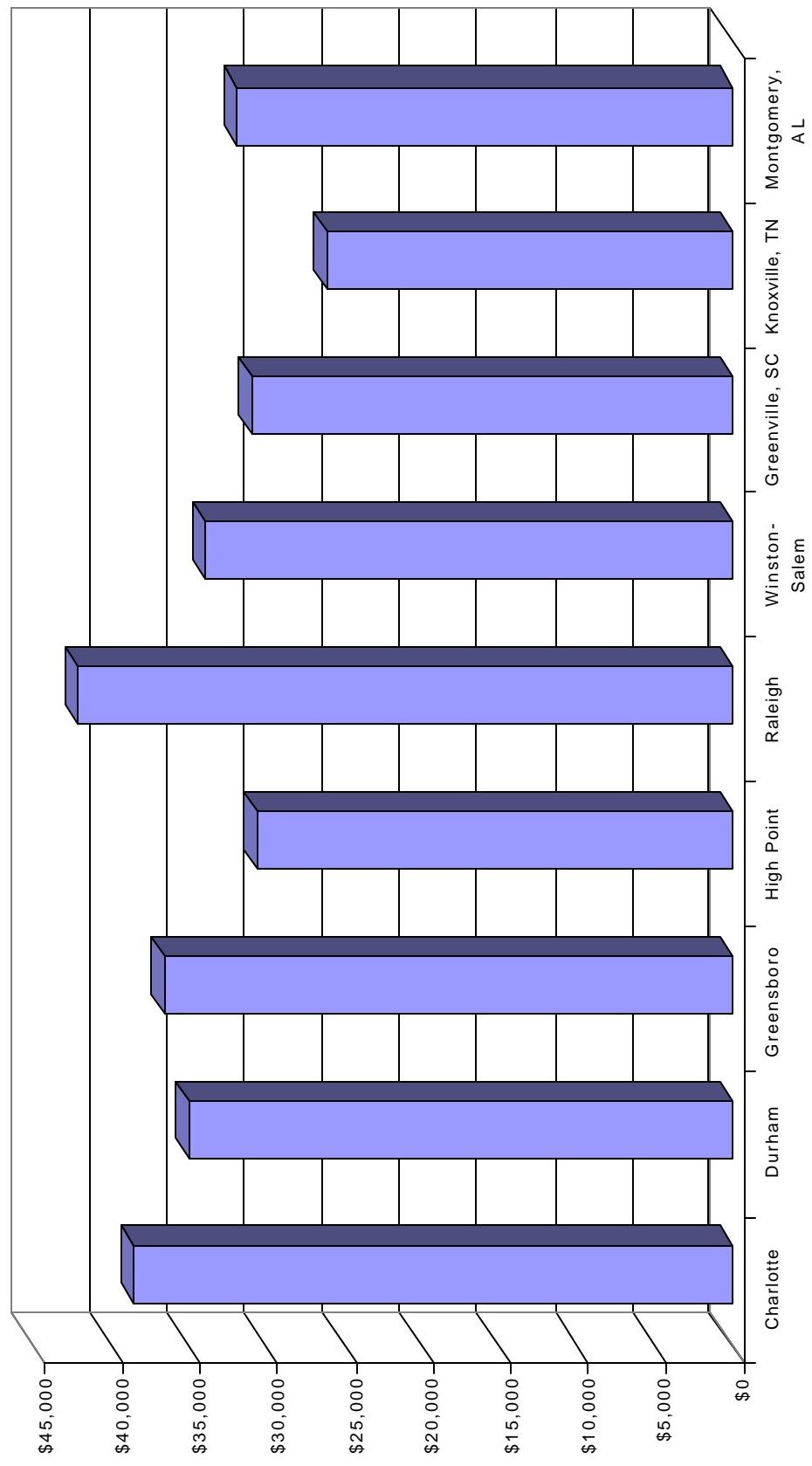
Source: US Census Bureau, 1970-1990 Census Tracts for Greensboro-Winston-Salem-High Point MSA. *The income ranges are based on 1990 dollars.

Table 3-22: Family Income in Selected Municipalities, 1990

NC Municipalities	Charlotte			Durham			Greensboro			High Point			Raleigh			Winston-Salem		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Less Than \$4,999	4,285	4.1%	1,709	5.2%	1,616	3.5%	788	4.2%	1,811	3.7%	1,980	5.4%						
5,000 To 9,999	4,069	3.9%	2,018	6.1%	2,236	4.8%	1,071	5.6%	1,768	3.6%	2,106	5.8%						
10,000 To 14,999	6,045	5.8%	2,332	7.0%	3,011	6.5%	1,871	9.9%	2,503	5.1%	2,658	7.3%						
15,000 To 24,999	14,734	14.2%	5,209	15.7%	7,239	15.7%	3,739	19.7%	6,009	12.3%	6,045	16.6%						
25,000 To 49,999	38,811	37.5%	11,977	36.1%	17,703	38.3%	7,183	37.9%	17,498	35.9%	12,714	34.9%						
50,000 Or More	35,498	34.3%	9,929	29.9%	14,441	31.2%	4,320	22.8%	19,204	39.4%	10,919	30.0%						
All Families	103,442	100.0%	33,174	100.0%	46,246	100.0%	18,972	100.0%	48,793	100.0%	36,422	100.0%						
Median	\$38,553	--	\$35,024	--	\$36,678	--	\$30,643	--	\$42,212	--	\$34,007	--						
Mean (Average)	\$48,775	--	\$41,355	--	\$46,224	--	\$38,954	--	\$49,715	--	\$45,690	--						
Out-of-State	Greenville, SC			Knoxville, TN			Montgomery, AL											
Municipalities	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent								
Less Than \$4,999	1,004	7.1%	2,894	7.0%	3,107	6.4%												
5,000 To 9,999	1,022	7.3%	3,645	8.8%	3,316	6.9%												
10,000 To 14,999	1,207	8.6%	4,562	11.1%	3,919	8.1%												
15,000 To 24,999	2,441	17.4%	8,556	20.8%	8,016	16.6%												
25,000 To 49,999	4,740	33.7%	14,382	34.9%	17,647	36.5%												
50,000 Or More	3,637	25.9%	7,190	17.4%	12,309	25.5%												
All Families	14,051	100.0%	41,229	100.0%	48,314	100.0%												
Median	\$30,997	--	\$26,131	--	\$31,959	--	--	--	--	--	--	--						
Mean (Average)	--	--	--	--	--	--	--	--	--	--	--	--						

Source: US Census Bureau, 1990 Census of Population & Housing.

Figure 3-16: Median Family Income in Selected Municipalities, 1990

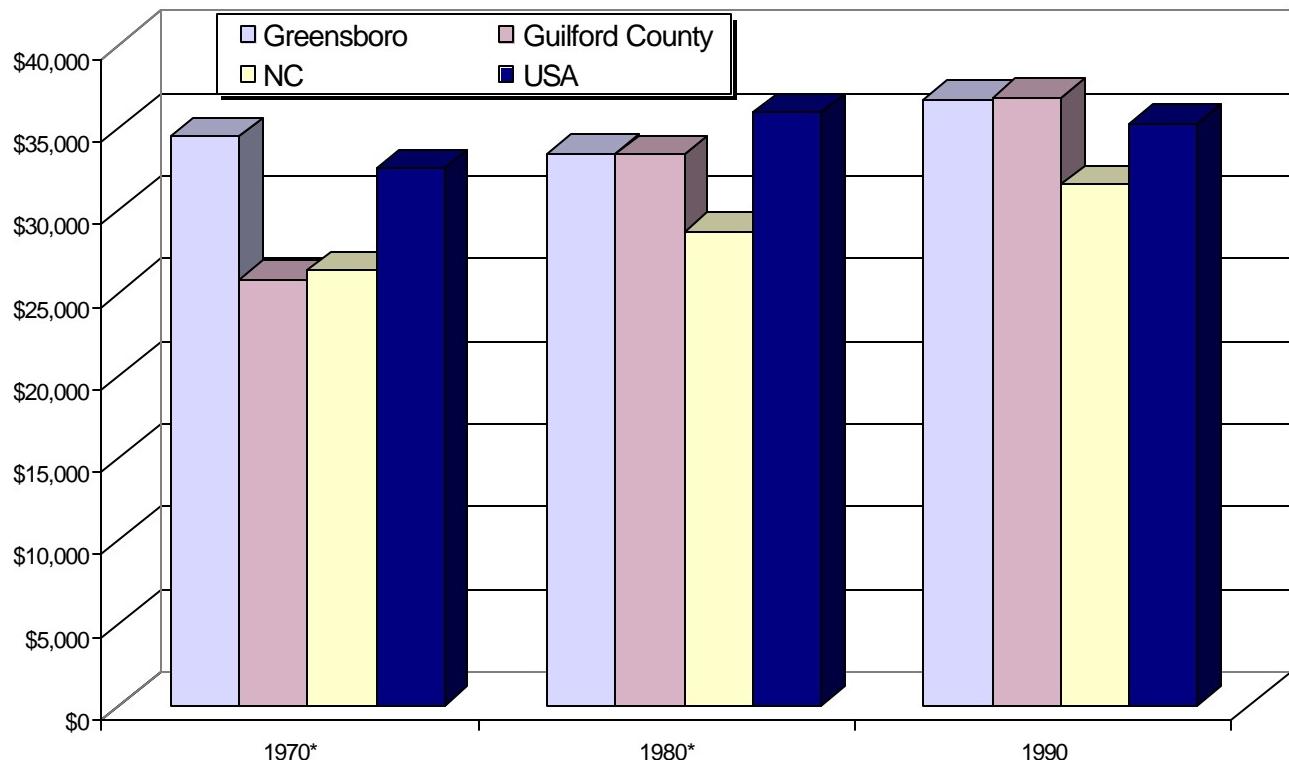


Source: US Census Bureau, 1990 Census of Population & Housing.

Table 3-23: Median Family Income in Selected Areas, 1970-1990			
Selected Area	1970*	1980*	1990
Greensboro	\$34,434	\$33,392	\$36,678
Guilford County	\$25,824	\$33,384	\$36,754
NC	\$26,332	\$28,673	\$31,548
USA	\$32,470	\$35,897	\$35,224

Source: US Census Bureau, 1970-1990 Census of Population & Housing. *Adjusted to 1990 dollars using the Consumer Price Index.

Figure 3-17: Median Family Income in Selected Areas, 1970-1990

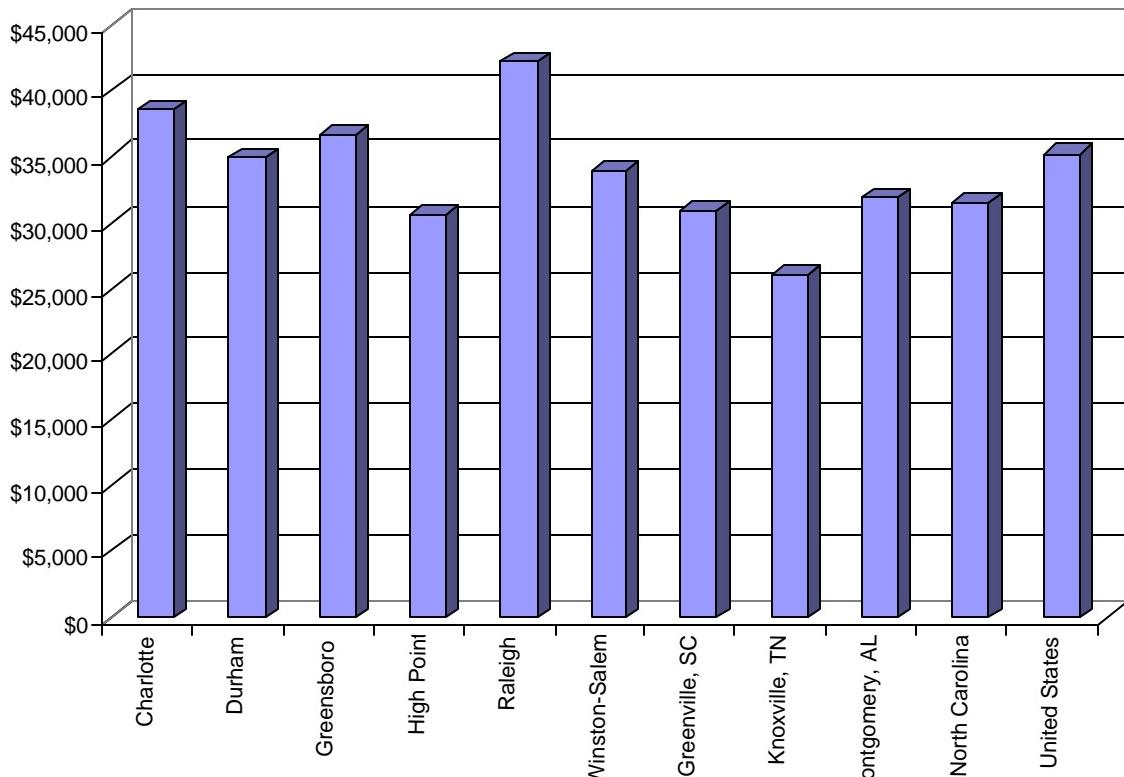


Source: US Census Bureau, 1970-1990 Census of Population & Housing. *Adjusted to 1990 dollars using the Consumer Price Index.

Table 3-24: Median Family Income in Selected Areas, 1990	
NC Municipalities	
Charlotte	\$38,553
Durham	\$35,024
Greensboro	\$36,678
High Point	\$30,643
Raleigh	\$42,212
Winston-Salem	\$34,007
Out-of-State Municipalities	
Greenville, SC	\$30,997
Knoxville, TN	\$26,131
Montgomery, AL	\$31,959
Other	
North Carolina	\$31,548
United States	\$35,224

Source: US Census Bureau, 1990
Census of Population & Housing.

Figure 3-18: Median Family Income in Selected Areas, 1990



Source: US Census Bureau, 1990 Census of Population & Housing.

Table 3-25: Poverty in Greensboro, 1990	
Overall Poverty Rate	11.6%
Poverty Rate by Race / Ethnic Origin	
White	6.8%
Black	20.7%
Other	17.0%
Hispanic Origin (of any race)	15.0%
Poverty Rate by Age	
0 - 4	18.6%
5 - 17	14.4%
18 - 24	23.1%
25 - 44	7.3%
45 - 64	7.4%
65 and older	12.1%
Poverty Rate by Family Type	
All Families	8.2%
Families with Children	12.9%
Families with Preschooler(s)	15.8%
Female Householder with Children	34.1%
Female Householder with Preschooler(s)	47.0%
Source: US Census Bureau, 1990 Census of Population & Housing.	

Table 3-26: Guilford County's Poverty Rate by 1990 Census Tract

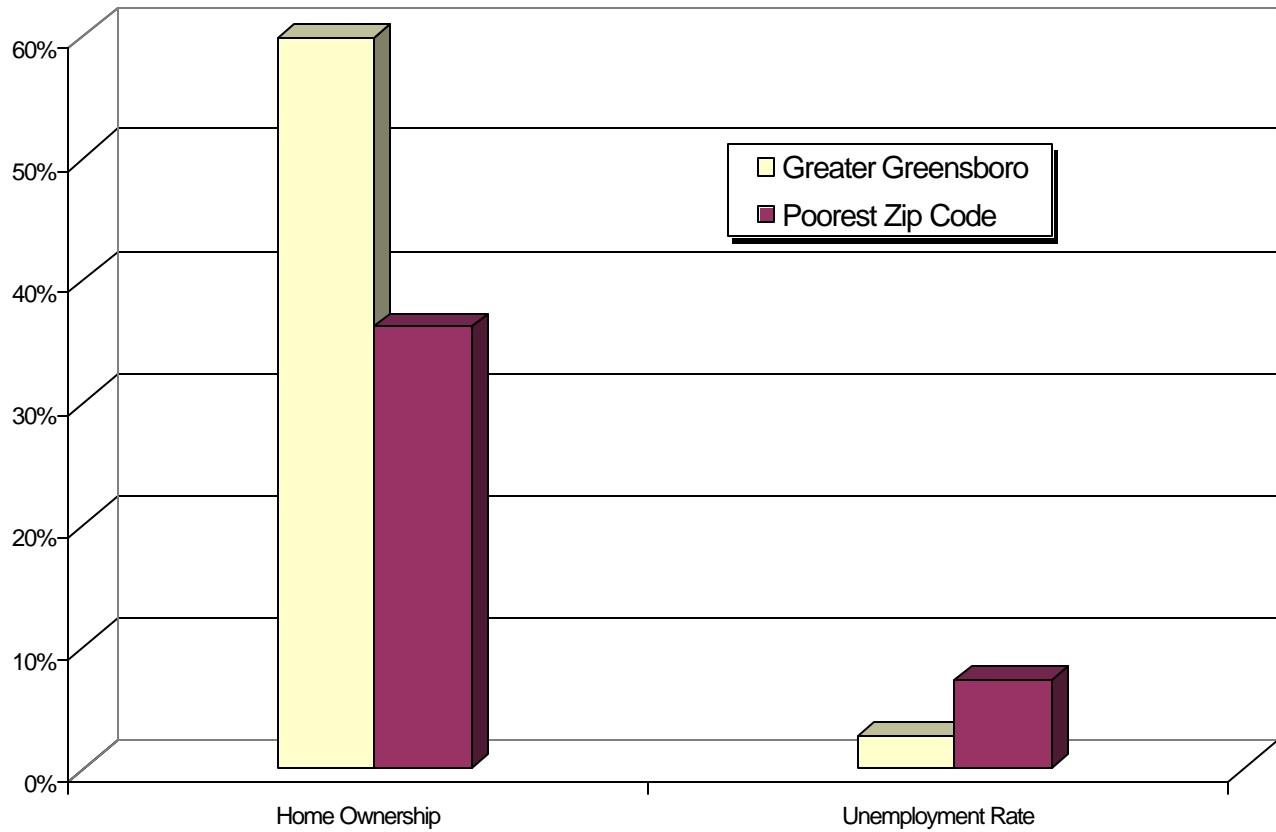
Census Tract	Poverty Rate	Census Tract	Poverty Rate	Census Tract	Poverty Rate
101	27.8%	126.04	7.8%	146	26.8%
102	16.0%	126.07	4.9%	151	8.4%
103	9.3%	126.08	14.8%	152	6.3%
104.01	11.2%	126.09	6.0%	153	6.1%
104.03	4.2%	126.10	1.6%	154	10.5%
104.04	2.8%	126.11	6.1%	155	10.0%
105	4.0%	126.12	3.7%	156	5.8%
106.01	9.3%	126.17	12.9%	157.01	5.0%
106.02	16.0%	127.03	9.1%	157.02	4.9%
107.01	14.4%	127.04	6.0%	157.03	3.7%
107.02	31.8%	127.05	17.7%	158	4.0%
108.01	37.7%	127.06	11.4%	159	8.8%
108.02	9.9%	127.07	17.8%	160.01	6.3%
109	13.8%	128.03	8.9%	160.02	3.0%
110	23.9%	128.04	2.4%	161.01	3.7%
111.01	42.2%	128.05	6.4%	161.02	7.1%
111.02	11.7%	136.01	6.8%	162.01	6.5%
112	26.8%	136.02	7.8%	162.02	5.1%
113	15.7%	137	5.6%	163	2.7%
114	40.2%	138	23.8%	164.01	5.1%
115	17.6%	139	27.6%	164.02	4.7%
116.01	11.7%	140	11.2%	165.01	3.6%
116.02	17.6%	142	16.3%	165.02	6.4%
119.04	13.3%	143	29.7%	166	5.5%
119.05	19.5%	144.02	4.8%	167	5.3%
125.03	4.1%	144.05	5.7%	168	4.8%
125.04	12.3%	144.06	14.4%	169	5.5%
125.05	1.6%	144.07	5.6%	170	3.6%
125.06	0.9%	144.08	33.6%	171	2.9%
125.08	3.6%	145.01	13.7%	172	5.2%
125.09	2.8%	145.02	21.0%		
126.01	14.5%	145.03	13.3%		

Source: US Census Bureau, 1990 Census of Population & Housing, & STF3A File.

Table 3-27: Poverty & Demographics Measurements, 2000		
Measurement	Greater Greensboro	Poorest Zip Code
Home Ownership	59.8%	36.1%
Unemployment Rate	2.6%	7.2%
Race		
Caucasian	67%	25%
African American	31%	73%
Other	2%	2%
Highest Level of Educational Attainment Achieved		
Below High School Diploma	15%	23%
High School Diploma	27%	29%
Some College	25%	24%
College Degree & Above	33%	26%

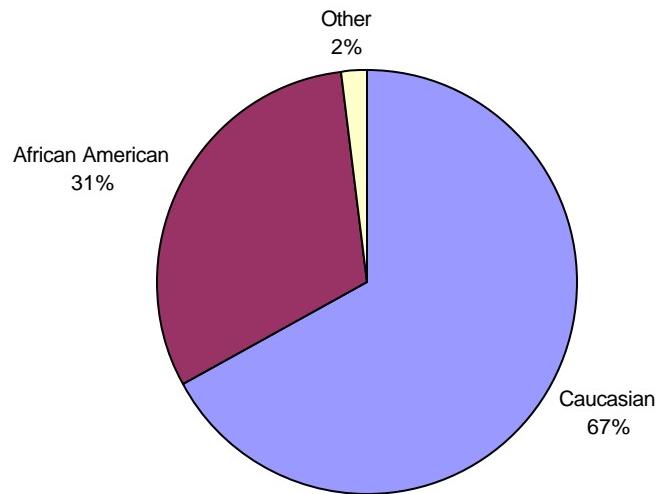
Source: McKinsey & Co., Building Consensus for Greensboro's Future, 2000; Editor & Publisher Co., Market Guide, 2000.

Figure 3-19: Homeownership & Unemployment in Greater Greensboro, 2000



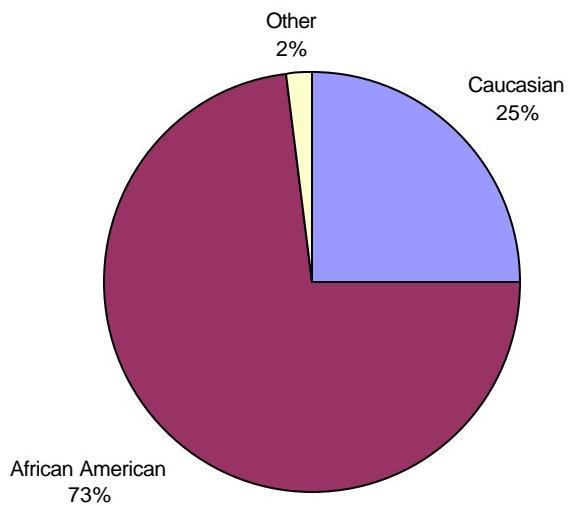
Source: McKinsey & Co., Building Consensus for Greensboro's Future, 2000; Editor & Publisher Co., Market Guide, 2000.

Figure 3-20: Population by Race for Greater Greensboro, 2000



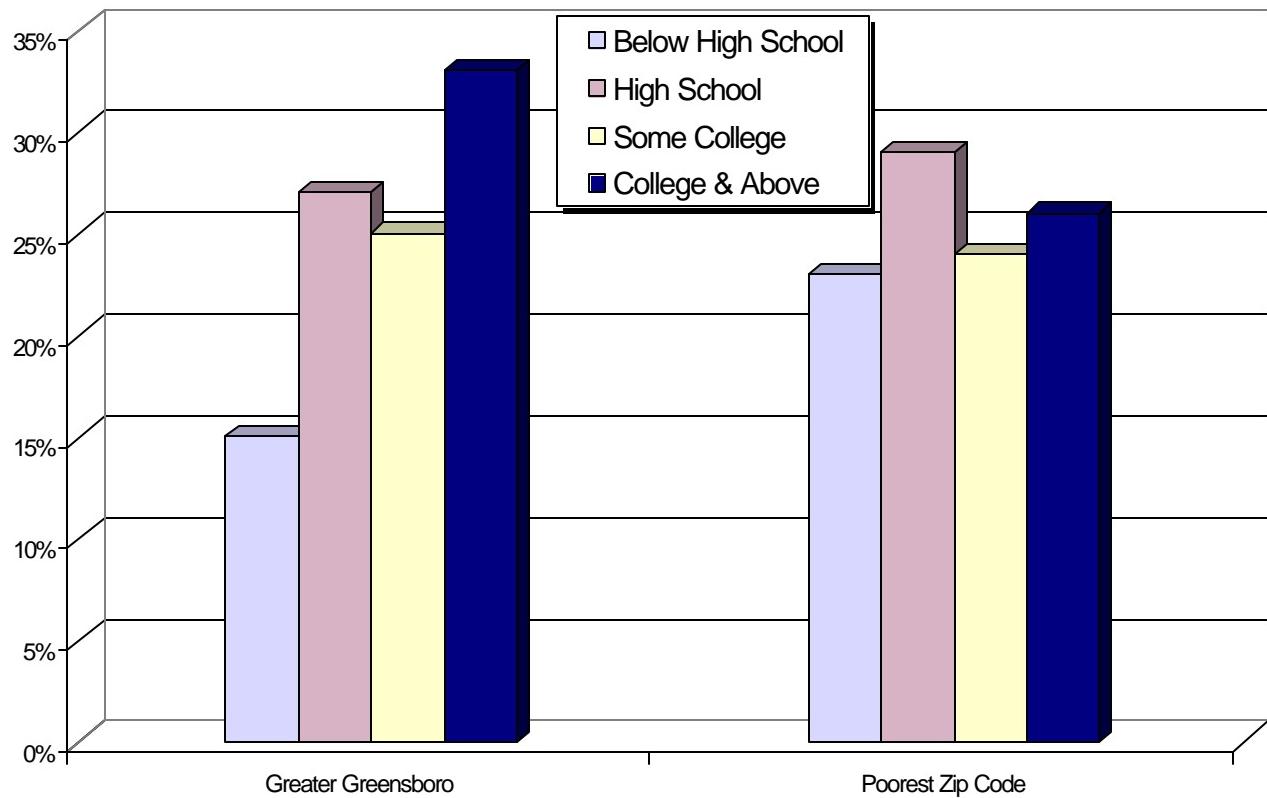
Source: McKinsey & Co., Building Consensus for Greensboro's Future, 2000; Editor & Publisher Co., Market Guide, 2000.

Figure 3-21: Population by Race for the Poorest Zip Code in Greater Greensboro, 2000



Source: McKinsey & Co., Building Consensus for Greensboro's Future, 2000; Editor & Publisher Co., Market Guide, 2000.

Figure 3-22: Highest Level of Educational Attainment Achieved in Greater Greensboro, 2000



Source: McKinsey & Co., Building Consensus for Greensboro's Future, 2000; Editor & Publisher Co., Market Guide, 2000.

Chapter 4

Economy

ECONOMY: INTRODUCTION

The major focus of this chapter is the changing economic conditions within Greensboro and Guilford County. Data are included that assess the area's economic health.

One true measure of the strength of an economy is per capita income. Unemployment, median family income, wage rates, and population influence per capita income, and all are examined within this chapter.

Over the past ten years, Greensboro's economy has experienced modest growth. Since 1970, a fundamental change has been underway in that manufacturing as a percentage of employment has been on the decline, while service jobs have risen. Greensboro is moving from a manufacturing based economy to a service based one.

Other major topics used in this chapter to measure the health of the economy include the cost of living, the labor force, employment in the manufacturing and non-manufacturing sectors, retail sales for Greensboro and Guilford County, and regional investment by new and expanded businesses in Greensboro, Guilford County, and Triad regional counties. The impact of tourism on the Triad region and its economy is also examined.

ECONOMY: SUMMARY HIGHLIGHTS

Cost of Living

Among the comparison cities in 2000, Greensboro and Montgomery, AL had nearly the same cost of living, which was slightly below the national standard. Raleigh had a cost of living higher than the national standard and had the highest cost of living among all comparison cities. Knoxville, TN had the lowest cost of living. Greensboro's housing costs were second highest among the comparison cities and its transportation costs were the highest. The cost of living index, as compiled by the American Chamber of Commerce Research Association (ACCRA), is based on a combination of the cost of grocery items, housing, utilities, transportation, health care, and miscellaneous goods and services. The cost of living index shows the affordability of an area as compared to the national standard.

Rank in the Region

Between 1990-1999, Greensboro's importance in the region was examined in terms of selected indicators and the proportion of those indicators the City had as compared to the remainder of the Triad region. Greensboro had more than a third of the region's employment growth, retail sales, and professional and technical firms. When looking at the proportion of jobs in the region, Greensboro had approximately one third of the region's professional/technical, food services and health care jobs and more than 40 percent of the jobs in three occupational categories: wholesale trade, real estate, and educational services.

Employment and Income

Geographically, 1990 unemployment rates were greatest in census tracts located in Southeast Greensboro. Average annual unemployment rates for Greensboro decreased between 1995 and 1999, from 3.8 percent to 2.5 percent. However, more recent data revealed that unemployment in Guilford County went from 3.1 percent in November 2000 to 3.6 percent in April 2001.

The average annual unemployment rate in 1999 among the regional counties was below the average for the state and nation, with the exception of Rockingham County, which had an unemployment rate of 4.8 percent. Guilford County's unemployment rate for the period averaged 2.4 percent, compared to the state with 3.2 percent and the nation with 4.2 percent.

The top ten categories of jobs gained in Guilford County from 1994 to 1999 were in the areas of Business Services, Air Transport, and Health Services, with Business Services leading at 6,307. Textiles led in the number of jobs lost at 3,600, which was 41.2 percent of the total number lost, 8,729.

Manufacturing as a percentage of employment in Greensboro decreased from 27.6 percent in 1970 to 19.2 percent in 1990. Conversely, employment in the non-manufacturing sector increased from 72.4 percent to 80.8 percent.

For the period 1990-1999, the service sector has replaced the manufacturing sector as the largest employer in Guilford County. In 1999, the service sector constituted 26.1 percent of the County's employment, up from its previous 19.9 percent share in 1990, while manufacturing declined from 26 percent to 19.9 percent.

Guilford County's per-capita income, when compared to selected areas for 1998, was lower (\$29,229) than that of Forsyth (\$31,304), Mecklenburg (\$35,245), and Wake (\$33,780). Guilford County's per-capita income was higher than the remainder of the comparison areas of Alamance, Durham, Randolph, Rockingham, North Carolina, and the United States. Per-capita income will be the true measure of how the community endures this transition. Unemployment, median family income, wage rates, and population all influence per capita income.

Investment and Jobs

Guilford County led the comparison counties in economic growth from 1990-1999 in all categories measured. In Guilford County, new businesses increased by 46.4 percent, workers increased by 51.7 percent and net jobs increased by 53.5 percent. Of that growth, Greensboro accounted for nearly 63 percent of all new businesses, nearly 53 percent of all new workers, and nearly 62 percent of all net new jobs.

On a regional level, Guilford County led comparison counties in investments and jobs by expanding and new firms, a total of \$1.2 billion investment dollars and 9,070 jobs between 1998 and 2000. Rockingham County ranked second with \$431.3 million investment dollars

County ranked second in jobs at 2,419 and fourth in investments at \$222.7 million. However, during this same time period, jobs and investments have been continuing to decline. Between 1999 and 2000, Guilford County had a 76 percent decrease in investments and a 14 percent decrease in jobs.

In Guilford County, between 1996 and 2000, existing firms have exceeded new firms in dollars invested and in jobs created.

Tourism

From 1995-1999, Guilford County has led the region in the four indicators relating to the impact of tourism: expenditures, payroll dollars, employment and local tax receipts. In 1999, the County had \$814 million in expenditures, \$273 million in payroll, 14,000 employees in employment and \$21 million in tax receipts.

Table 4-1: Cost of Living Index Comparison Among Selected Municipalities, 1999							
NC Municipalities	Grocery Items	Housing	Utilities	Transportation	Health Care	Misc. Goods & Services	Composite Index*
Charlotte	101.0	92.8	101.5	100.5	96.5	101.1	98.5
Durham	99.4	97.1	102.8	97.2	107.8	103.7	100.6
Greensboro	96.3	98.1	101.1	104.5	96.8	95.9	97.9
High Point	NA	NA	NA	NA	NA	NA	NA
Raleigh	107.6	112.4	103.1	97.7	108.6	101.2	105.5
Winston-Salem	96.3	88.8	101.7	94.4	91.0	96.0	94.1
Out-of-State Municipalities							
Greenville, SC	NA	NA	NA	NA	NA	NA	NA
Knoxville, TN	97.0	90.4	92.5	88.9	88.1	96.4	93.3
Montgomery, AL	94.4	93.9	107.2	104.4	93.5	98.8	97.7

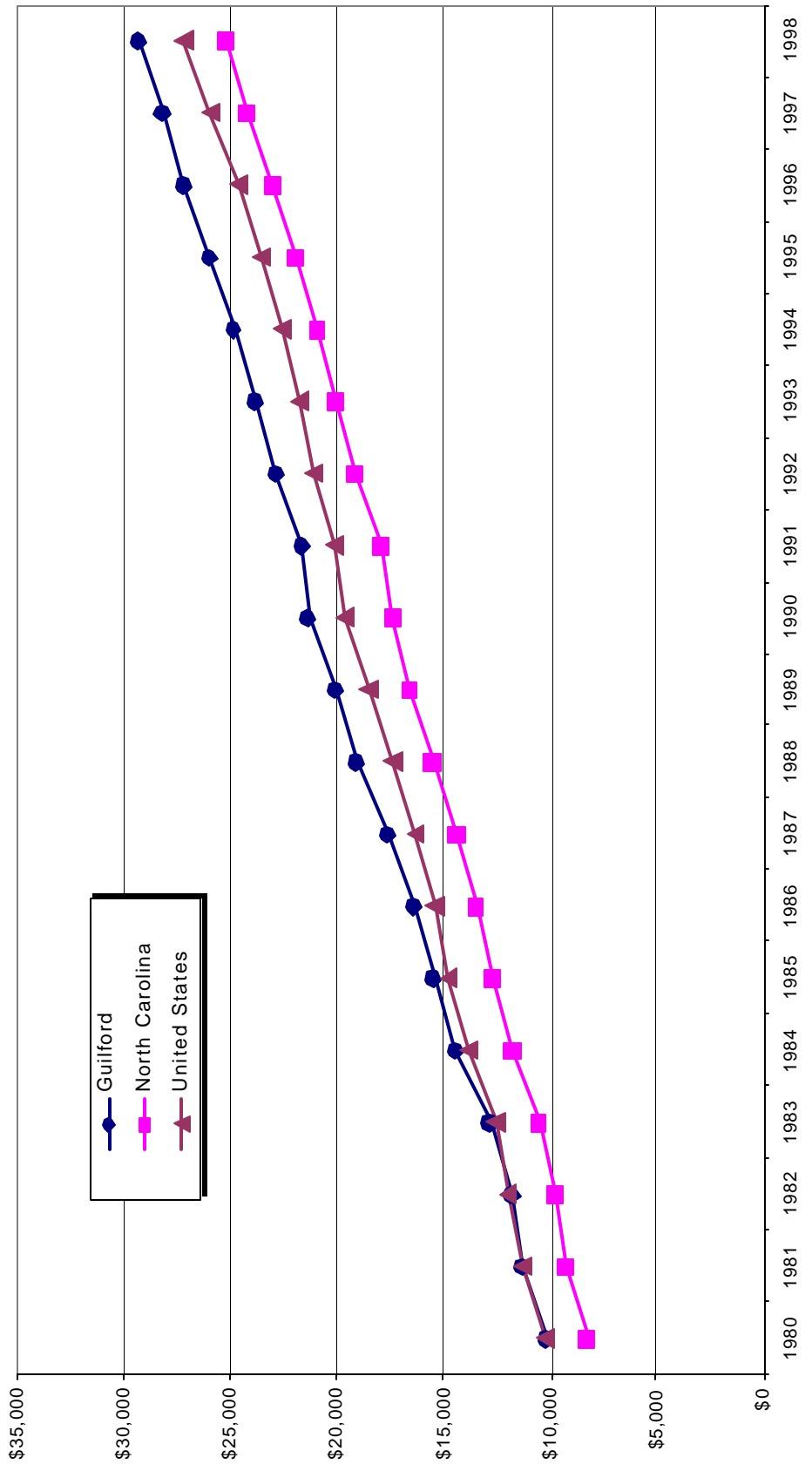
Source: ACCRA, 2000. *Includes: Grocery items, housing, utilities, transportation, health care, & misc. goods & services. Note: 100 is the composite average of the number of communities that participated in the survey.

Table 4-2: Per Capita Income by Selected Areas, 1980-1998

Year	Selected Comparison Counties						Other Comparisons			
	Alamance	Durham	Forsyth	Guilford	Mecklenburg	Randolph	Rockingham	Wake	North Carolina	United States
1980	\$8,792	\$9,663	\$10,521	\$10,121	\$10,455	\$7,996	\$8,348	\$10,468	\$8,247	\$10,183
1981	\$9,811	\$10,695	\$11,782	\$11,255	\$11,668	\$8,871	\$9,226	\$11,494	\$9,184	\$11,280
1982	\$10,372	\$11,549	\$12,445	\$11,778	\$12,355	\$9,425	\$9,624	\$12,407	\$9,690	\$11,901
1983	\$11,181	\$12,478	\$13,328	\$12,786	\$13,342	\$10,164	\$10,392	\$13,678	\$10,480	\$12,554
1984	\$12,381	\$14,018	\$14,872	\$14,396	\$15,003	\$11,249	\$11,323	\$15,429	\$11,788	\$13,824
1985	\$13,161	\$15,404	\$16,075	\$15,401	\$16,430	\$12,182	\$11,880	\$17,058	\$12,649	\$14,705
1986	\$14,113	\$16,072	\$16,983	\$16,266	\$17,483	\$13,168	\$12,312	\$18,089	\$13,444	\$15,397
1987	\$14,831	\$16,959	\$18,281	\$17,544	\$18,941	\$13,744	\$13,219	\$19,305	\$14,325	\$16,284
1988	\$15,902	\$18,262	\$20,072	\$19,028	\$20,500	\$14,729	\$14,013	\$20,601	\$15,461	\$17,403
1989	\$17,048	\$19,543	\$21,397	\$20,033	\$21,604	\$15,596	\$14,885	\$21,874	\$16,539	\$18,566
1990	\$17,574	\$20,272	\$22,218	\$21,302	\$23,297	\$15,987	\$15,521	\$22,488	\$17,367	\$19,584
1991	\$18,002	\$20,872	\$22,574	\$21,568	\$23,526	\$16,161	\$16,191	\$23,102	\$17,879	\$20,089
1992	\$18,903	\$22,626	\$23,806	\$22,812	\$25,128	\$17,464	\$16,801	\$24,521	\$19,120	\$21,082
1993	\$19,891	\$23,383	\$24,759	\$23,835	\$26,438	\$18,495	\$17,710	\$25,691	\$20,042	\$21,718
1994	\$20,839	\$23,964	\$25,569	\$24,797	\$27,888	\$19,533	\$18,465	\$26,686	\$20,931	\$22,581
1995	\$21,942	\$24,980	\$27,212	\$25,916	\$29,685	\$20,182	\$19,010	\$27,996	\$21,938	\$23,562
1996	\$22,755	\$26,154	\$28,243	\$27,212	\$31,363	\$20,897	\$19,498	\$29,332	\$22,940	\$24,651
1997	\$23,960	\$27,770	\$29,465	\$28,160	\$32,988	\$21,721	\$20,374	\$31,792	\$24,210	\$25,924
1998	\$24,836	\$28,492	\$31,304	\$29,229	\$35,245	\$22,622	\$20,866	\$33,780	\$25,181	\$27,203

Source: US Bureau of Economic Analysis, Regional Economic Information System, release date May, 2000.

Figure 4-1: Per Capita Income by Selected Areas, 1980-1998



Source: US Bureau of Economic Analysis, Regional Economic Information System, release date May, 2000.

Table 4-3: Triad Regional Per Capita Income by County, 1998		
County	Income	Rank in NC
Alamance	\$24,836	16
Forsyth	\$31,304	3
Guilford	\$29,229	4
Randolph	\$22,622	31
Rockingham	\$20,866	54

Source: US Dept. of Commerce, Economics & Statistics Admin., Bureau of Economic Analysis, Survey of Current Business, May 2000.

Table 9: Greensboro Employment By Industry, 1970-1990		1970		1980		1990	
Sector		Number	Percent	Number	Percent	Number	Percent
Manufacturing		17,302	27.6%	19,214	25.4%	19,233	19.2%
Nonmanufacturing		45,286	72.4%	56,480	74.6%	80,867	80.8%
Professional, Personal & Business Services		17,281	27.6%	23,237	30.7%	32,937	32.9%
Retail & Wholesale Trade		13,918	22.2%	17,129	22.6%	24,047	24.0%
Other*		14,087	31.1%	16,114	28.6%	23,883	23.9%
Total Employed (16 years & over)		62,588	100.0%	75,694	100.0%	100,100	100.0%

Source: US Census Bureau, 1970-1990. *Includes Government.

Figure 4-2: Greensboro Employment by Industry, 1970-1990

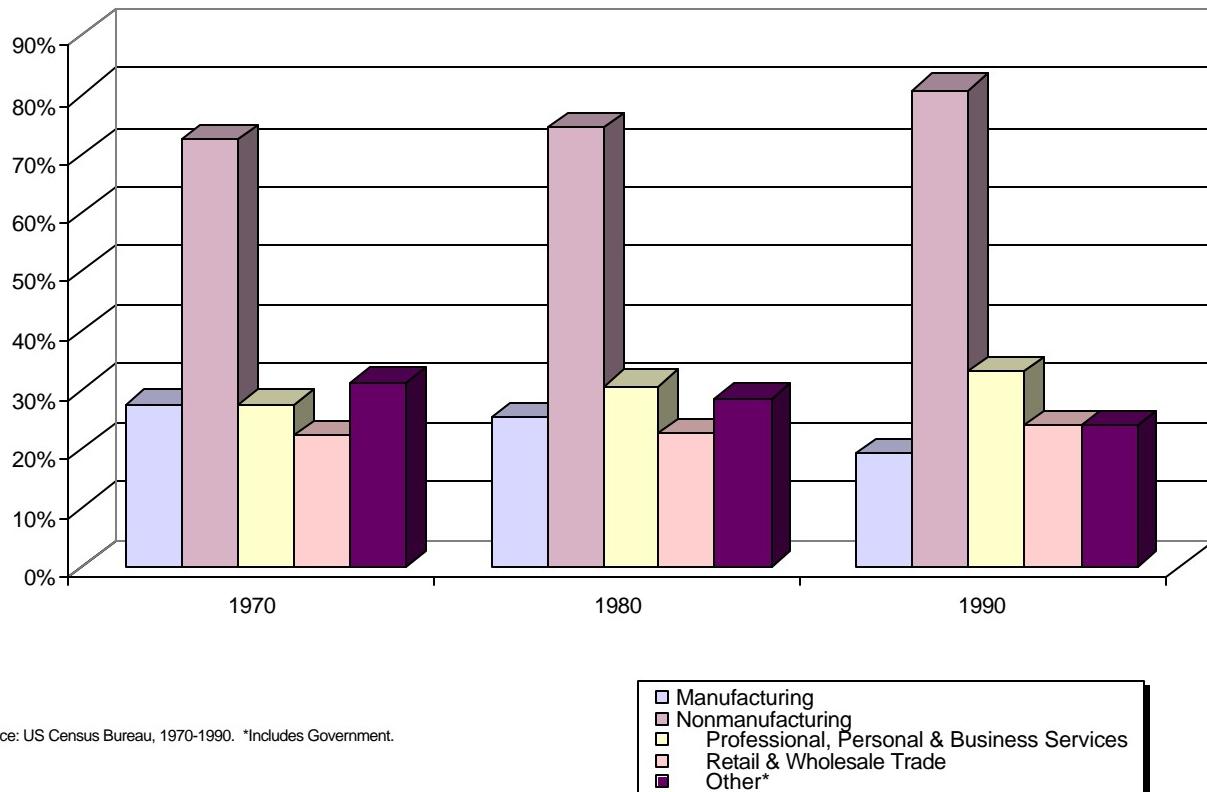
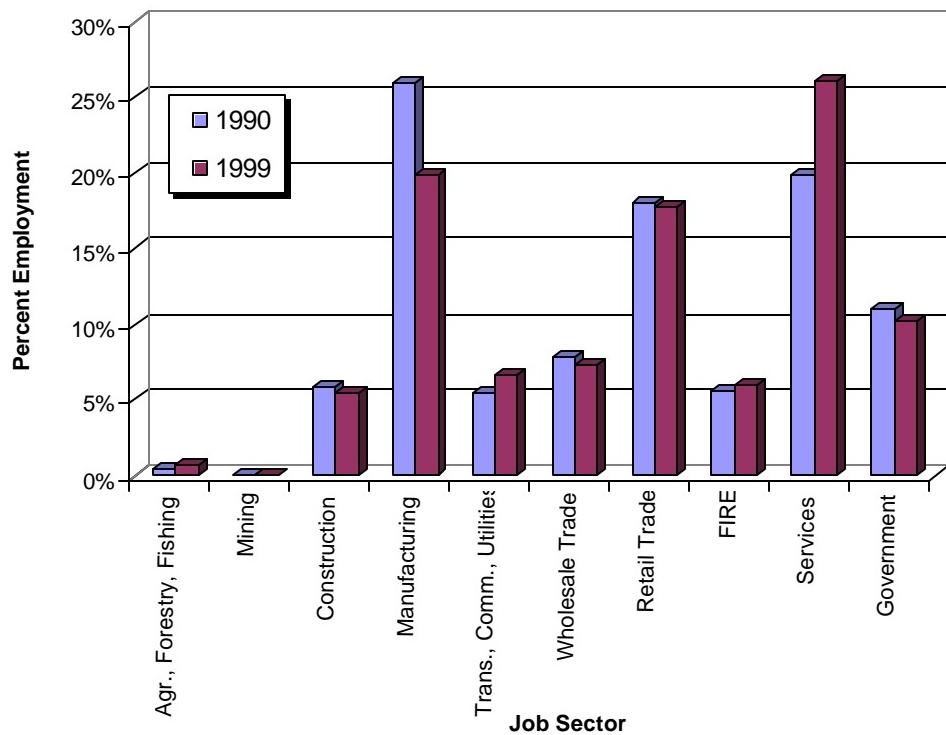


Table 4-5: Guilford County Employment by Sector, 1990, 1999

Sector	1990 Employment		1999 Employment	
	Number	Percent	Number	Percent
Agriculture, Forestry, Fishing	1,006	0.4%	2,040	0.7%
Mining	126	0.1%	202	0.1%
Construction	12,969	5.8%	14,888	5.4%
Manufacturing	58,507	26.0%	55,398	19.9%
Transportation, Communications, Utilities	12,269	5.4%	18,330	6.6%
Wholesale Trade	17,557	7.8%	20,312	7.3%
Retail Trade	40,513	18.0%	49,313	17.8%
Finance, Insurance, Real Estate (FIRE)	12,479	5.5%	16,334	5.9%
Services	44,802	19.9%	72,403	26.1%
Government	24,980	11.1%	28,506	10.3%

Source: NCESC, Employment & Wages in NC, 1990, 1999. 1999 information is as of the 4th Quarter, 1999.

Figure 4-3: Guilford County Employment by Sector, 1990, 1999



Source: Employment Security Commission of NC, Employment & Wages in NC, 1990, 1999. 1999 information is as of the 4th Quarter, 1999.

Figure 4-4: Guilford County Employment by Sector, 1999

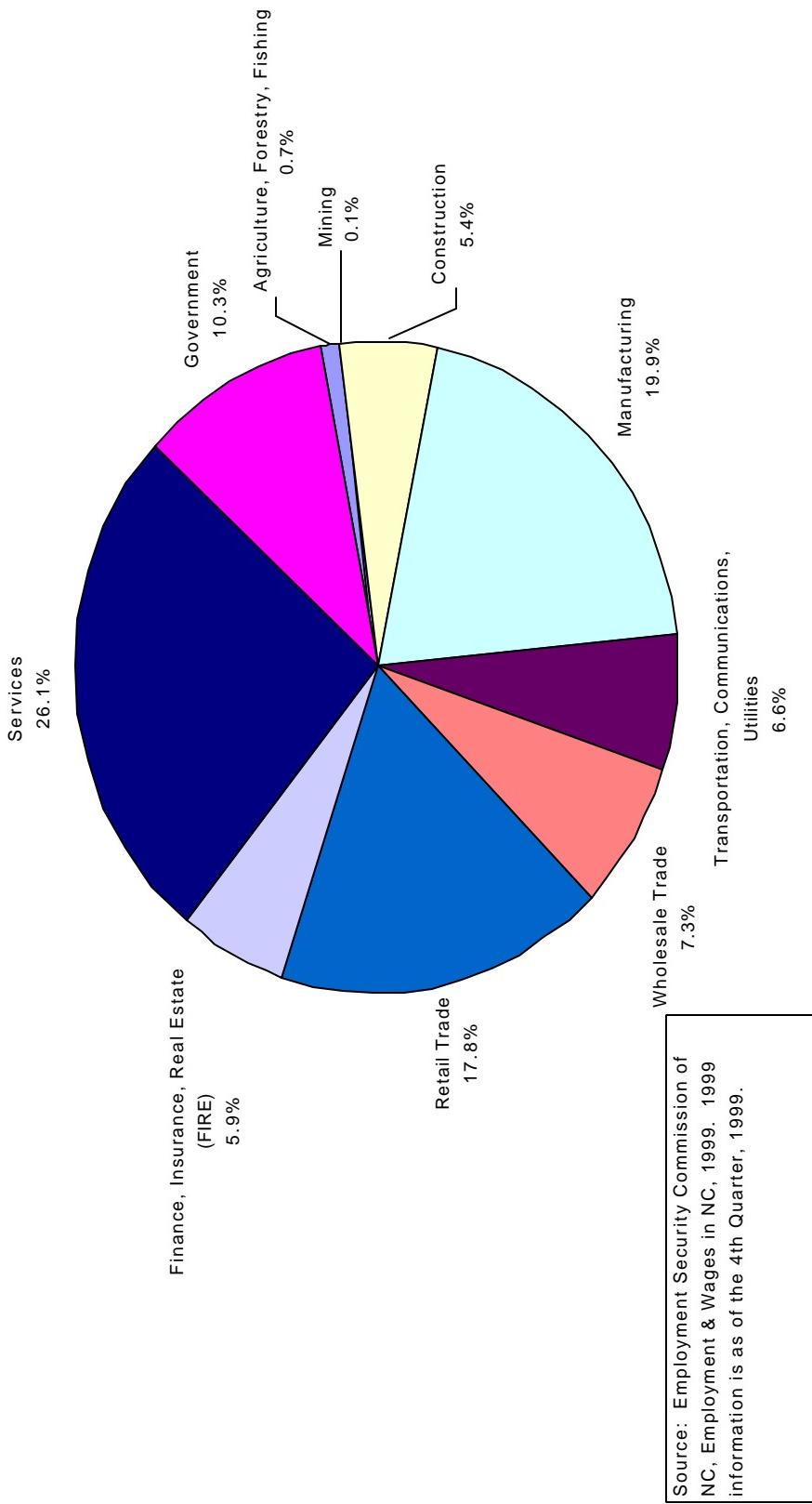
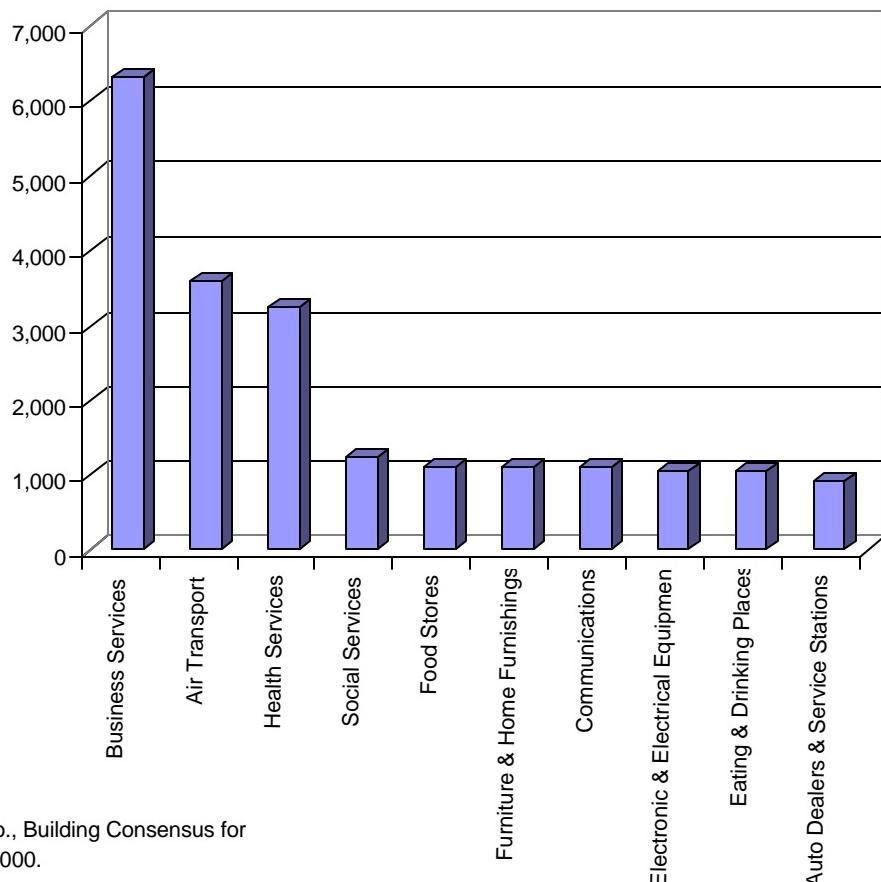


Table 4-6: Changing Employment in Guilford County:
Top Ten Jobs Created, 1994-1999

Industry	Number of Jobs Created
Business Services	6,307
Air Transport	3,611
Health Services	3,263
Social Services	1,258
Food Stores	1,121
Furniture & Home Furnishings	1,117
Communications	1,115
Electronic & Electrical Equipment	1,064
Eating & Drinking Places	1,058
Auto Dealers & Service Stations	930
Total	20,844

Source: McKinsey & Co., Building Consensus for Greensboro's Future, 2000.

Figure 4-5: Changing Employment in Guilford County: Top Ten Jobs Created, 1994-1999

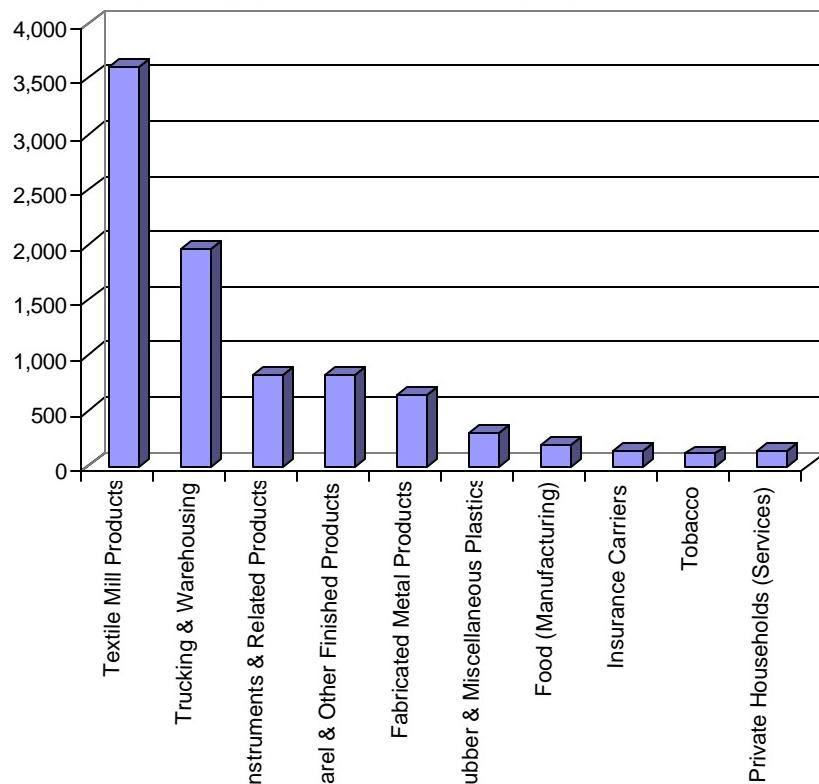


Source: McKinsey & Co., Building Consensus for Greensboro's Future, 2000.

Table 4-7: Changing Employment in Guilford County: Top Ten Jobs Lost, 1994-1999	
Industry	Number of Jobs Lost
Textile Mill Products	3,600
Trucking & Warehousing	1,970
Instruments & Related Products	822
Apparel & Other Finished Products	818
Fabricated Metal Products	628
Rubber & Miscellaneous Plastics	307
Food (Manufacturing)	193
Insurance Carriers	139
Tobacco	115
Private Households (Services)	137
Total	8,729

Source: McKinsey & Co., Building Consensus for Greensboro's Future, 2000.

Figure 4-6: Changing Employment in Guilford County: Top Ten Jobs Lost, 1994-1999

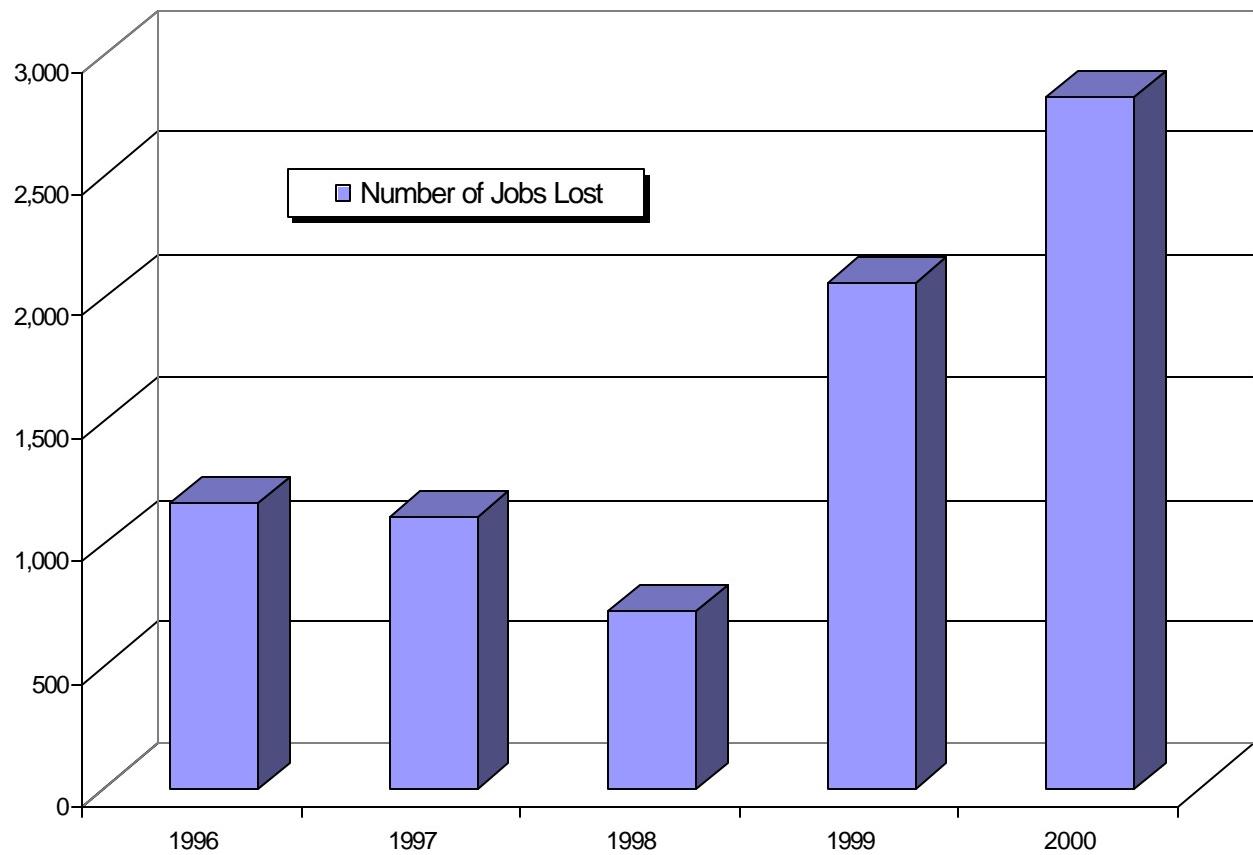


Source: McKinsey & Co., Building Consensus for Greensboro's Future, 2000.

Table 4-8: Greater Greensboro Summary of Layoffs & Terminations, 1996-2000	
Year	Number of Jobs Lost
1996	1,163
1997	1,107
1998	721
1999	2,068
2000	2,824

Source: Greensboro Area Chamber of Commerce, 2000.

Figure 4-7: Greater Greensboro Summary of Layoffs and Terminations, 1996-2000

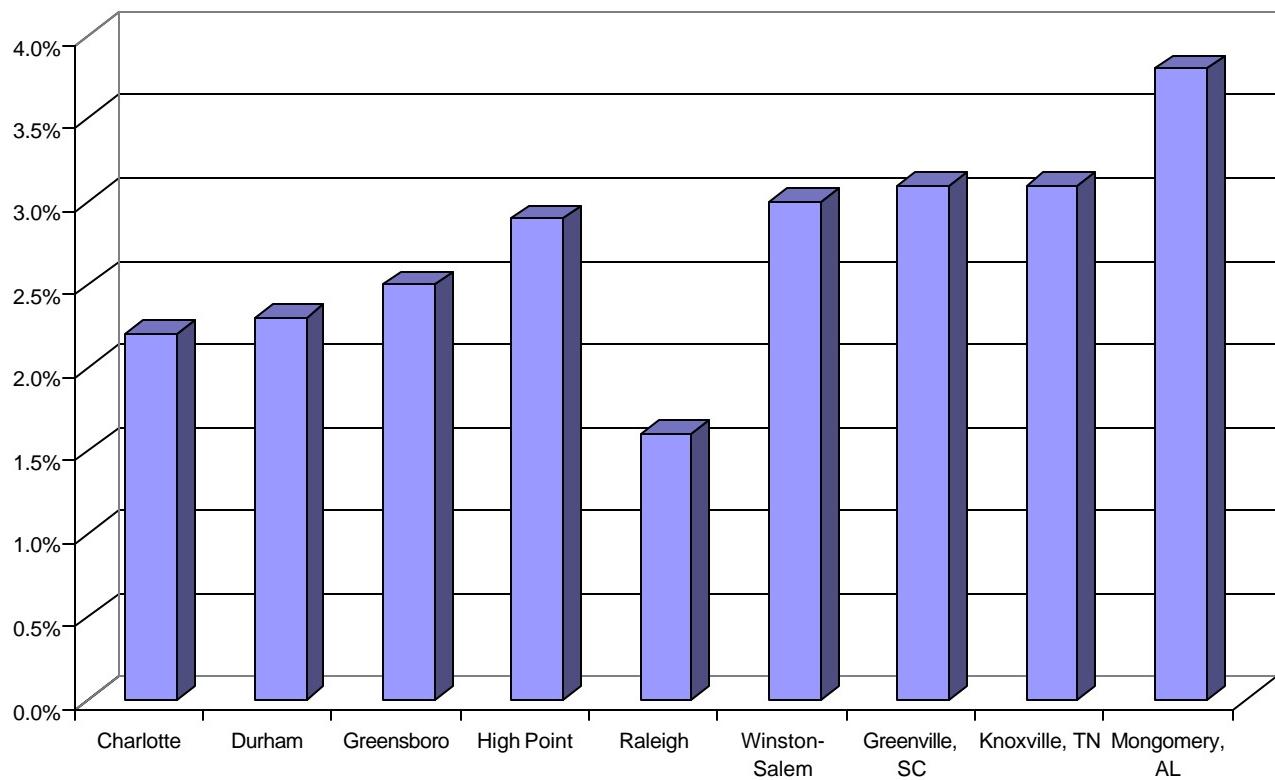


Source: Greensboro Area Chamber of Commerce, 2000.

Table 4-9: Average Unemployment Rates for Selected Municipalities, 1999	
NC Municipalities	Unemployment Rate
Charlotte	2.2%
Durham	2.3%
Greensboro	2.5%
High Point	2.9%
Raleigh	1.6%
Winston-Salem	3.0%
Out-of-State Municipalities	Unemployment Rate
Greenville, SC	3.1%
Knoxville, TN	3.1%
Montgomery, AL	3.8%

Source: NC, SC, TN, & AL Employment Security Commissions, 1999.

Figure 4-8: Average Unemployment Rates for Selected Municipalities, 1999



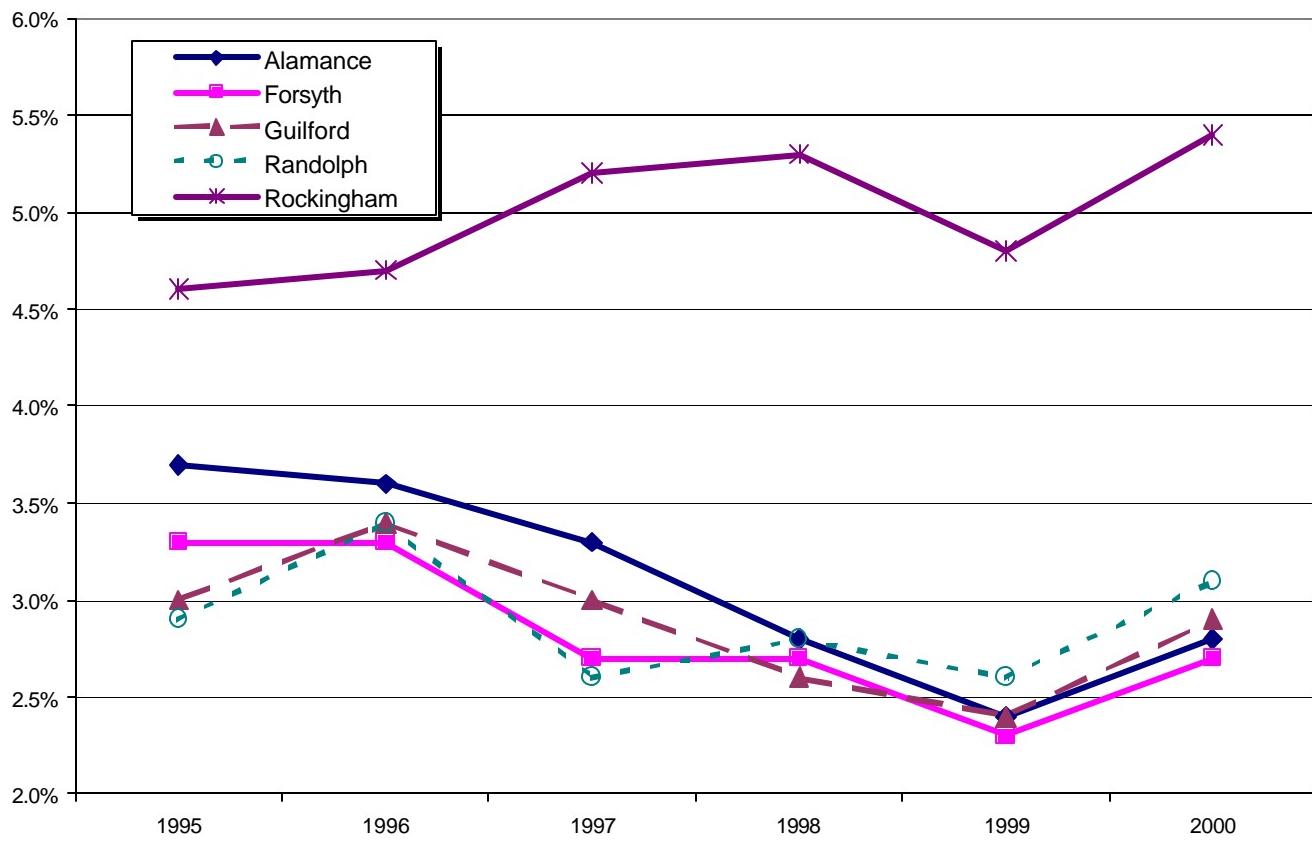
Source: NC, SC, TN, & AL Employment Security Commissions, 1999.

Table 4-10: Triad Regional Unemployment Rate, 1995-2000

County	Annual Average Percentage Rate					
	1995	1996	1997	1998	1999	2000
Greensboro	3.8%	3.6%	3.3%	2.8%	2.5%	2.9%
Alamance	3.7%	3.6%	3.3%	2.8%	2.4%	2.8%
Forsyth	3.3%	3.3%	2.7%	2.7%	2.3%	2.7%
Guilford	3.0%	3.4%	3.0%	2.6%	2.4%	2.9%
Randolph	2.9%	3.4%	2.6%	2.8%	2.6%	3.1%
Rockingham	4.6%	4.7%	5.2%	5.3%	4.8%	5.4%
North Carolina	4.0%	4.2%	3.7%	3.4%	3.2%	3.4%
United States	5.6%	5.4%	5.0%	4.5%	4.2%	4.1%

Source: NCESC, NC Local Area Unemployment Statistics, 1995-2000. 2001.

Figure 4-9: Triad Regional Unemployment Rate, 1995-2000

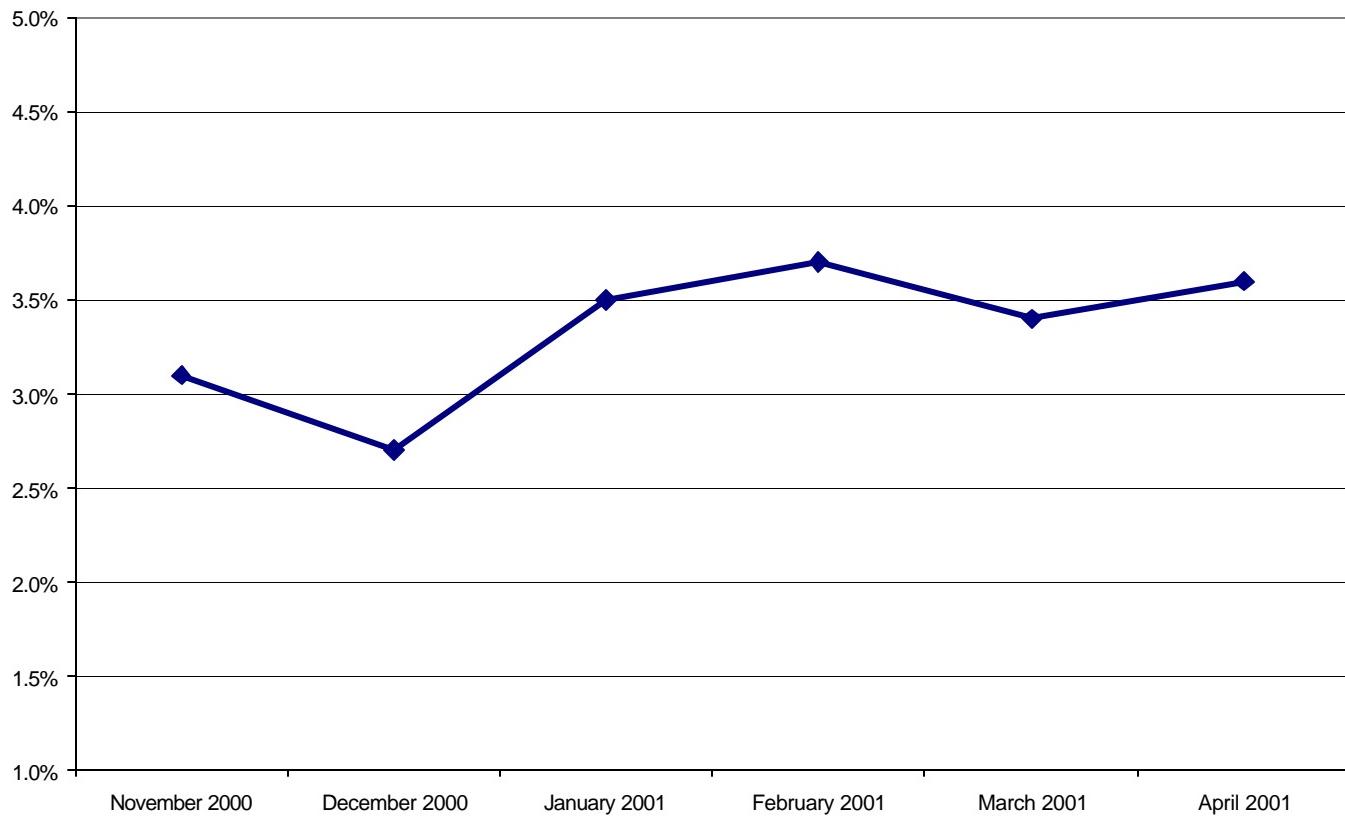


Source: NCESC, NC Local Area Unemployment Statistics, 1995-2000. 2001.

Table 4-11: Guilford County Unemployment Rate, November 2000-April 2001	
Date	Unemployment Rate
November 2000	3.1%
December 2000	2.7%
January 2001	3.5%
February 2001	3.7%
March 2001	3.4%
April 2001	3.6%

Source: NCESC, NC Local Area Unemployment Statistics, November 2000-April 2001.

Figure 4-10: Guilford County Unemployment Rate, November 2000-April 2001



Source: NCESC, NC Local Area Unemployment Statistics, November 2000-April 2001.

Table 4-12: Civilian Unemployment Rates by Race & Ethnic Origin for Guilford County, 1990

Race or Ethnic Origin	Number Unemployed	Unemployment Rate
White	1,900	2.8%
Black	2,710	8.0%
American Indian, Eskimo	34	6.3%
Asian, Pacific Islander	92	6.7%
Other	11	4.5%
Total	4,747	4.5%
Hispanic Origin (Any Race)	17	2.1%

Source: US Census Bureau, 1990 Census of Population & Housing, STF3A File.

Table 4-13: Guilford County's Unemployment Rate by 1990 Census Tract

Census Tract	Unemployment Rate	Census Tract	Unemployment Rate	Census Tract	Unemployment Rate
101	2.5%	126.04	6.5%	146	22.9%
102	4.3%	126.07	1.0%	151	2.5%
103	3.1%	126.08	4.2%	152	4.5%
104.01	1.2%	126.09	2.7%	153	2.6%
104.03	1.6%	126.10	2.5%	154	4.2%
104.04	0.9%	126.11	3.0%	155	2.2%
105	2.0%	126.12	2.6%	156	2.0%
106.01	1.1%	126.17	4.7%	157.01	1.7%
106.02	2.8%	127.03	7.5%	157.02	3.2%
107.01	5.3%	127.04	3.4%	157.03	1.8%
107.02	7.4%	127.05	7.8%	158	3.8%
108.01	7.6%	127.06	5.8%	159	3.6%
108.02	3.8%	127.07	4.7%	160.01	2.5%
109	3.8%	128.03	3.7%	160.02	1.2%
110	14.9%	128.04	3.0%	161.01	1.9%
111.01	15.4%	128.05	8.3%	161.02	3.1%
111.02	8.0%	136.01	4.5%	162.01	3.1%
112	11.7%	136.02	3.0%	162.02	1.6%
113	4.8%	137	0.7%	163	2.6%
114	10.1%	138	10.4%	164.01	1.0%
115	4.8%	139	10.1%	164.02	5.0%
116.01	3.8%	140	8.4%	165.01	1.2%
116.02	7.4%	142	9.8%	165.02	5.6%
119.04	3.6%	143	8.7%	166	4.9%
119.05	7.4%	144.02	1.6%	167	3.4%
125.03	2.1%	144.05	2.5%	168	5.7%
125.04	5.8%	144.06	8.0%	169	2.9%
125.05	0.9%	144.07	3.4%	170	2.7%
125.06	2.4%	144.08	11.0%	171	2.4%
125.08	3.2%	145.01	4.4%	172	2.1%
125.09	2.5%	145.02	6.2%		
126.01	3.3%	145.03	6.4%		

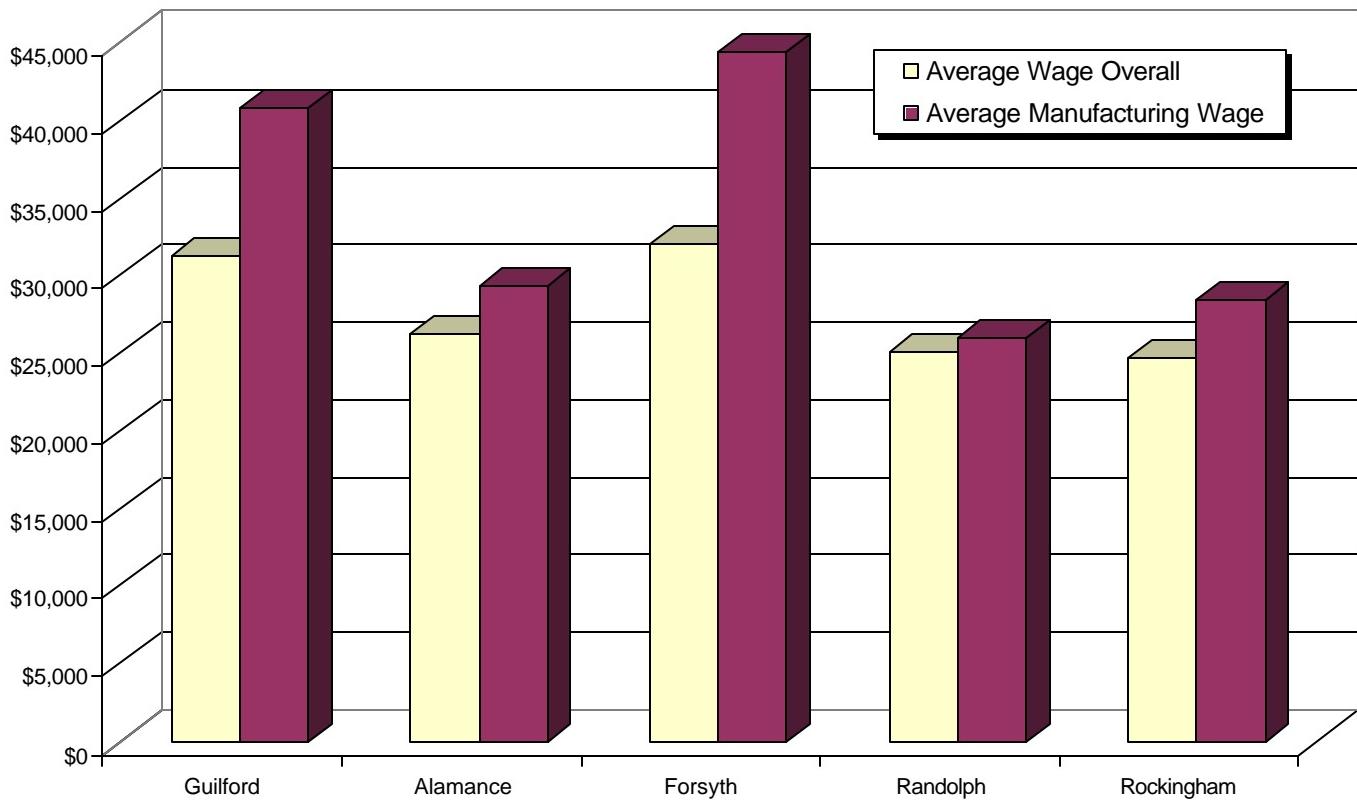
Source: US Census Bureau, 1990 Census of Population & Housing, STF3A files.

Table 4-14: Average Annual Wages for Triad Regional Counties, 1999

County	Average Wage Overall	Average Manufacturing Wage
Guilford	\$31,272	\$40,911
Alamance	\$26,211	\$29,324
Forsyth	\$32,016	\$44,394
Randolph	\$25,058	\$25,902
Rockingham	\$24,670	\$28,367

Source: NCESC, 1999 Employment & Wages in NC. 2000.

Figure 4-11: Average Annual Wages for Triad Regional Counties, 1999



Source: NCESC, 1999 Employment & Wages in NC. 2000.

Table 4-15: Average Annual Wages for the United States and Guilford County, 1975-1998

Year	United States	Guilford County
1975	\$10,293	\$9,632
1976	\$11,153	\$10,207
1977	\$12,004	\$10,931
1978	\$13,009	\$12,029
1979	\$14,059	\$12,973
1980	\$15,144	\$14,177
1981	\$16,449	\$15,372
1982	\$17,322	\$16,204
1983	\$18,151	\$17,193
1984	\$19,400	\$18,358
1985	\$20,307	\$19,181
1986	\$21,079	\$19,700
1987	\$22,059	\$20,892
1988	\$23,131	\$21,870
1989	\$24,064	\$22,919
1990	\$25,163	\$23,767
1991	\$26,000	\$24,414
1992	\$27,665	\$26,328
1993	\$28,307	\$26,677
1994	\$28,937	\$27,531
1995	\$29,540	\$28,325
1996	\$30,493	\$29,208
1997	\$31,753	\$30,053
1998	\$33,097	\$31,583

Source: US BEA, Regional Economic Information System. 2000.

Figure 4-12: Average Annual Wages for the United States and Guilford County, 1975-1998

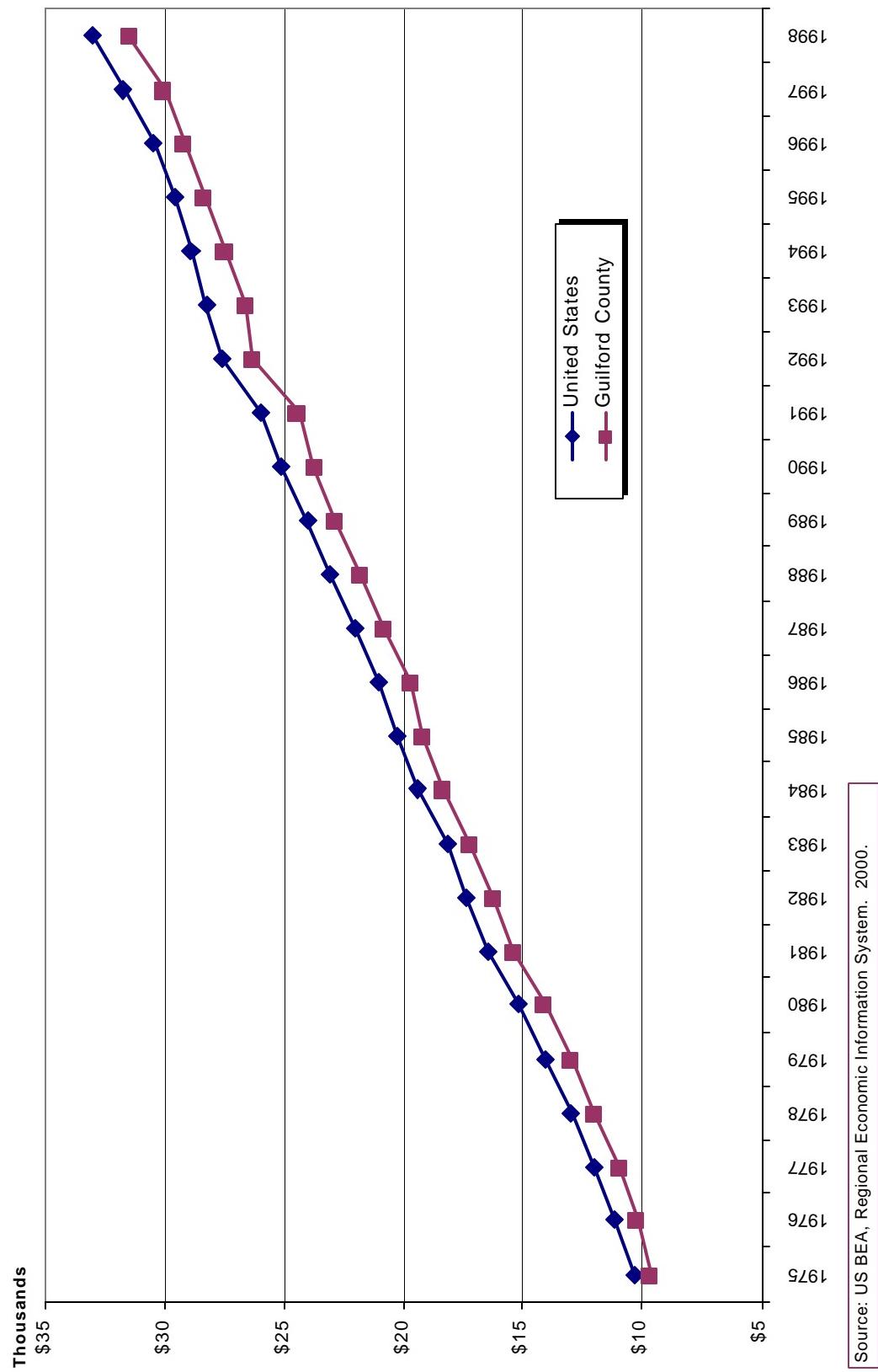
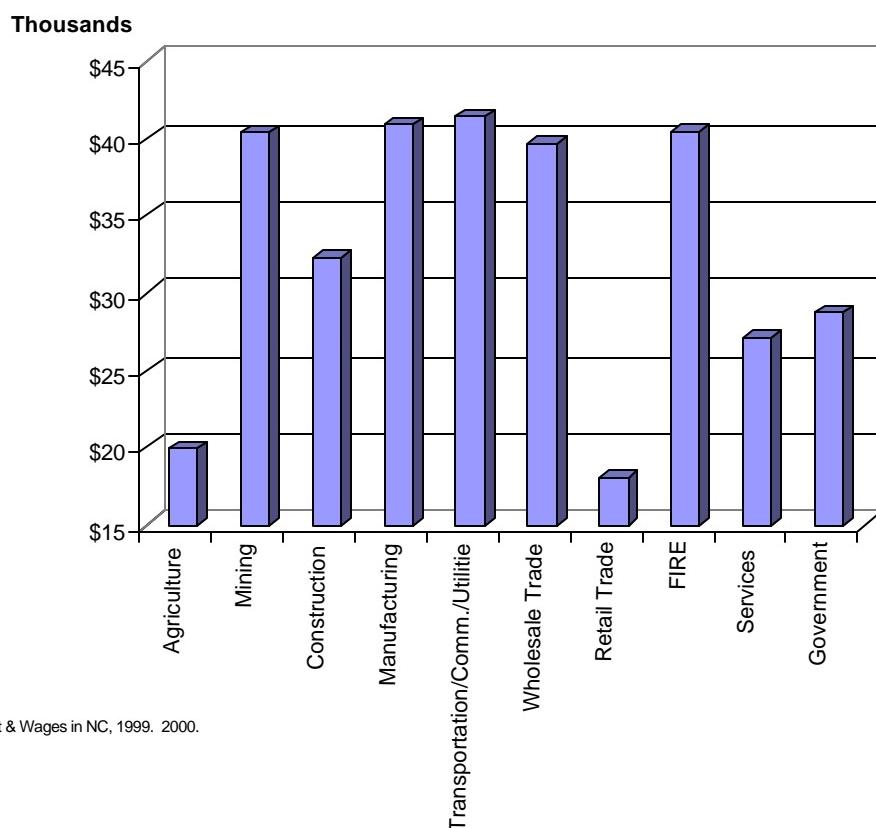


Table 4-16: Average Annual Wages by Industry in Guilford County, 1999

Industry	Wage
Agriculture	\$19,888
Mining	\$40,390
Construction	\$32,219
Manufacturing	\$40,911
Transportation/Comm./Utilities	\$41,415
Wholesale Trade	\$39,678
Retail Trade	\$17,953
FIRE	\$40,487
Services	\$27,155
Government	\$28,758
Average All Industries	\$31,272

Source: NCESC, Employment & Wages in NC, 1999. 2000.

Figure 4-13: Average Annual Wages by Industry in Guilford County, 1999



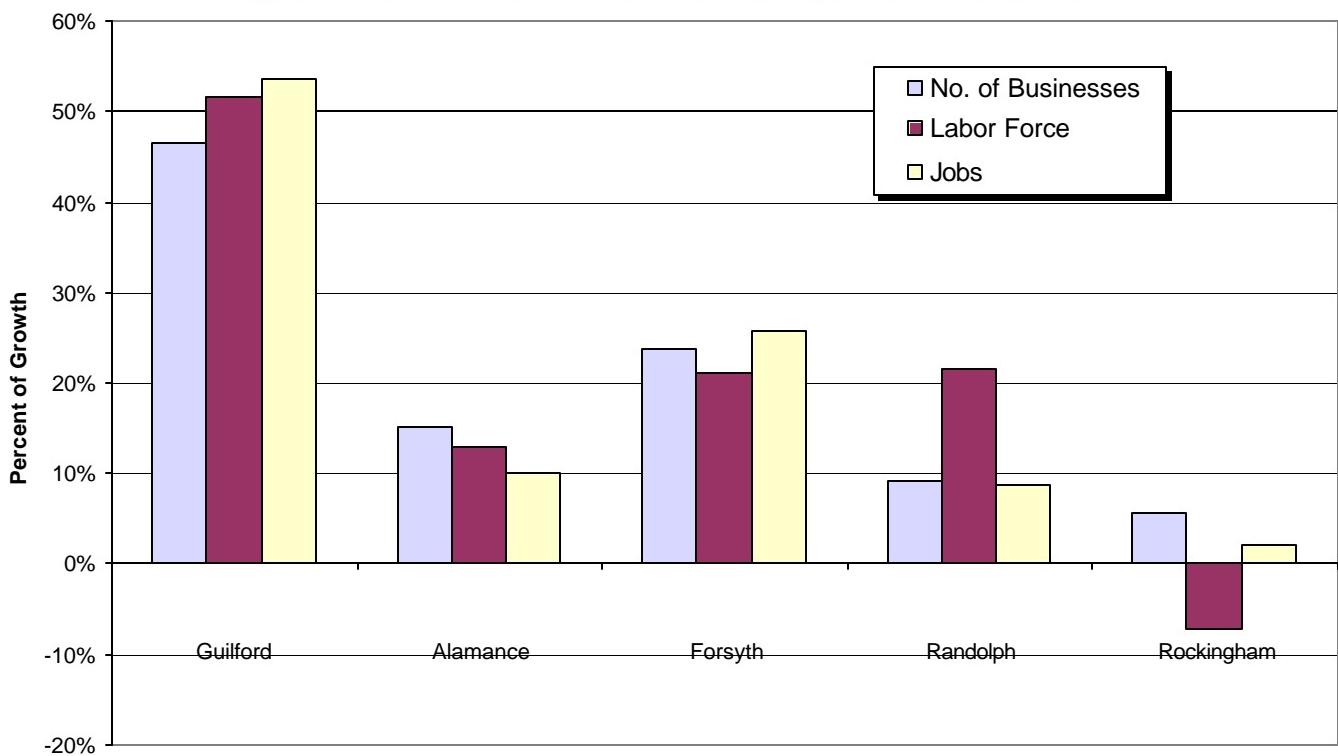
Source: NCESC, Employment & Wages in NC, 1999. 2000.

Table 4-17: Economic Growth Indicators for Triad Regional Counties, 1990-1999

Growth in Numbers			
Municipality/ County	Net Number of New Businesses	Net New Workers	Net New Jobs
Greensboro*	1,787	9,301	37,171
Guilford County	2,841	17,633	60,003
Alamance County	930	4,374	11,184
Forsyth County	1,461	7,229	28,999
Randolph County	555	7,326	9,627
Rockingham County	335	-2,426	2,327
Regional Total	6,122	34,136	112,140
Proportion of Region's Growth			
Municipality/ County	Net Number of New Businesses	Net New Workers	Net New Jobs
Greensboro*	29.2%	27.2%	33.1%
Guilford County	46.4%	51.7%	53.5%
Alamance County	15.2%	12.8%	10.0%
Forsyth County	23.9%	21.2%	25.9%
Randolph County	9.1%	21.5%	8.6%
Rockingham County	5.5%	-7.1%	2.1%

Source: NCESC, Employment & Wages in NC, & Civilian Labor Force Estimates in NC, 1990-1999. *Greensboro is shown to indicate its relationship to Guilford County. 1999 information is as of the 4th quarter, 1999.

Figure 4-14: Economic Growth Indicators for Triad Regional Counties, 1990-1999



Source: NCESC, Employment & Wages in NC, 1990-1999.

Table 4-18: Triad Regional Capital Investments & Jobs Announced from Expansion of Existing Firms & New Firms, *1998-2000

County	Expansion of Existing Firms		New Firms		Grand Total	
	Investments	Jobs	Investments	Jobs	Investments	Jobs
Alamance						
1998	\$58,245,400	455	\$15,000,000	155	\$73,245,400	610
1999	\$27,344,382	286	\$23,371,426	256	\$50,715,808	542
2000	\$18,621,718	248	\$0	0	\$18,621,718	248
Total	\$104,211,500	989	\$38,371,426	411	\$142,582,926	1,400
Forsyth						
1998	\$62,312,678	370	\$51,379,945	75	\$113,692,623	445
1999	\$115,637,620	1,080	\$61,100,000	80	\$176,737,620	1,160
2000	\$59,382,858	462	\$65,354,000	325	\$124,736,858	787
Total	\$237,333,156	1,912	\$177,833,945	480	\$415,167,101	2,392
Guilford						
*1998	\$291,895,980	1,958	\$344,727,186	2,007	\$636,623,166	3,965
1999	\$340,395,440	2,119	\$69,918,932	621	\$410,314,372	2,740
2000	\$96,230,603	1,795	\$3,000,000	570	\$99,230,603	2,365
Total	\$728,522,023	5,872	\$417,646,118	3,198	\$1,146,168,141	9,070
Randolph						
1998	\$78,997,841	830	\$29,700,000	502	\$108,697,841	1,332
1999	\$85,963,565	550	\$9,350,000	151	\$95,313,565	701
2000	\$18,657,055	386	\$0	0	\$18,657,055	386
Total	\$183,618,461	1,766	\$39,050,000	653	\$222,668,461	2,419
Rockingham						
1998	\$189,464,632	403	\$173,060,000	188	\$362,524,632	591
1999	\$37,877,396	232	\$12,000,000	32	\$49,877,396	264
2000	\$10,883,588	39	\$8,000,000	130	\$18,883,588	169
Total	\$238,225,616	674	\$193,060,000	350	\$431,285,616	1,024

Source: NC Dept. of Commerce, Div. of Economic Policy & Research, NC Economic Review 1998-2000. *Includes FedEx hub announcement.

Figure 4-15: Triad Regional Jobs Announced from Expansion of Existing Firms & New Firms, *1998-2000

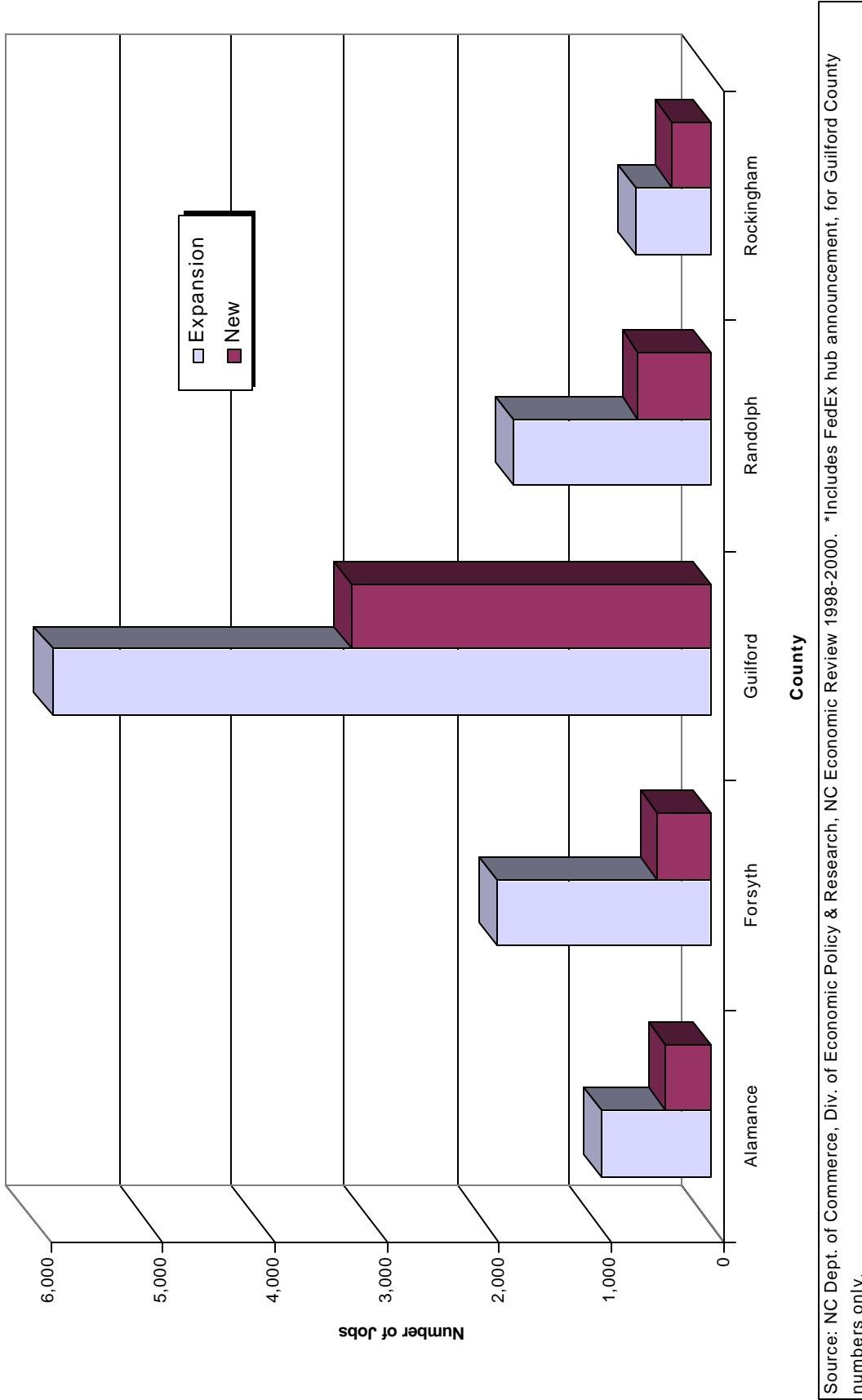


Table 4-19: Percentages of Announced Jobs and Investments in Guilford County: New & Expanding Businesses, 1987-2000

Year	Jobs		Investment	
	New	Expanding	New	Expanding
1987	64%	36%	84%	16%
1988	77%	23%	40%	60%
1989	42%	58%	32%	68%
1990	45%	55%	32%	68%
1991	19%	81%	10%	90%
1992	43%	57%	32%	68%
1993	35%	65%	9%	91%
1994	54%	46%	32%	68%
1995	55%	45%	30%	70%
1996	28%	72%	39%	61%
1997	21%	79%	22%	78%
*1998	13%	87%	16%	84%
**1999	21%	79%	10%	90%
2000	37%	63%	29%	71%
Average 1995-2000	39%	61%	29%	71%

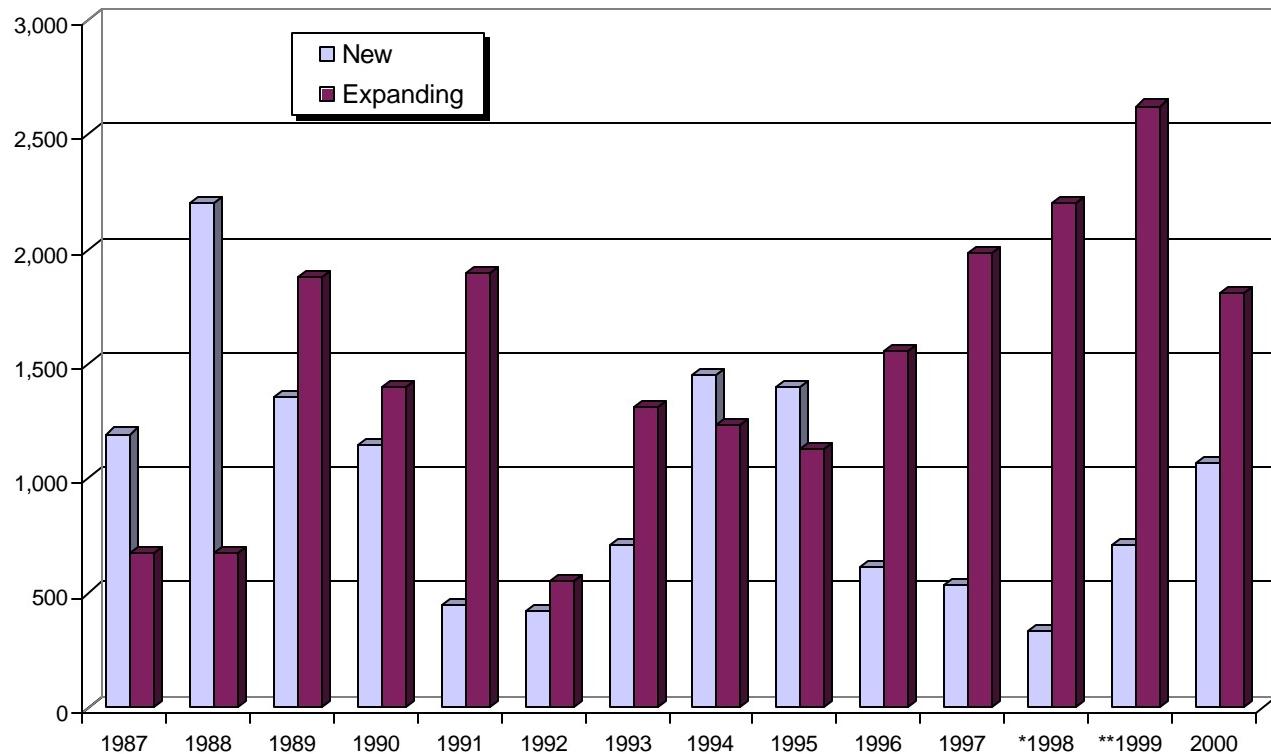
Source: Greensboro Chamber of Commerce, 2001. *FedEx hub NOT included. **Before 1999, High Point was not included in these numbers.

Table 4-20: Announced Jobs & Investments in Guilford County: New & Expanding Businesses, 1987-2000

Year	Jobs			Investment		
	New	Expanding	Total	New	Expanding	Total
1987	1,192	673	1,865	\$163,800,000	\$32,000,000	\$195,800,000
1988	2,209	666	2,875	\$50,048,000	\$74,915,000	\$124,963,000
1989	1,354	1,885	3,239	\$40,969,272	\$87,152,193	\$128,121,465
1990	1,141	1,401	2,542	\$52,426,560	\$109,009,082	\$161,435,642
1991	446	1,901	2,347	\$13,174,500	\$118,977,847	\$132,152,347
1992	420	550	970	\$77,705,000	\$166,053,000	\$243,758,000
1993	705	1,308	2,013	\$16,800,000	\$166,751,489	\$183,551,489
1994	1,453	1,235	2,688	\$66,353,200	\$141,253,200	\$207,606,400
1995	1,399	1,125	2,524	\$73,105,000	\$168,170,000	\$241,275,000
1996	606	1,559	2,165	\$69,650,000	\$111,060,319	\$180,710,319
1997	532	1,986	2,518	\$27,000,000	\$96,447,042	\$123,447,042
*1998	332	2,206	2,538	\$29,666,000	\$151,658,332	\$181,324,332
**1999	707	2,625	3,332	\$40,873,000	\$363,124,195	\$403,997,195
2000	1,063	1,813	2,876	\$25,932,851	\$63,524,031	\$89,456,882
Total	13,559	20,933	34,492	\$747,503,383	\$1,850,095,730	\$2,597,599,113

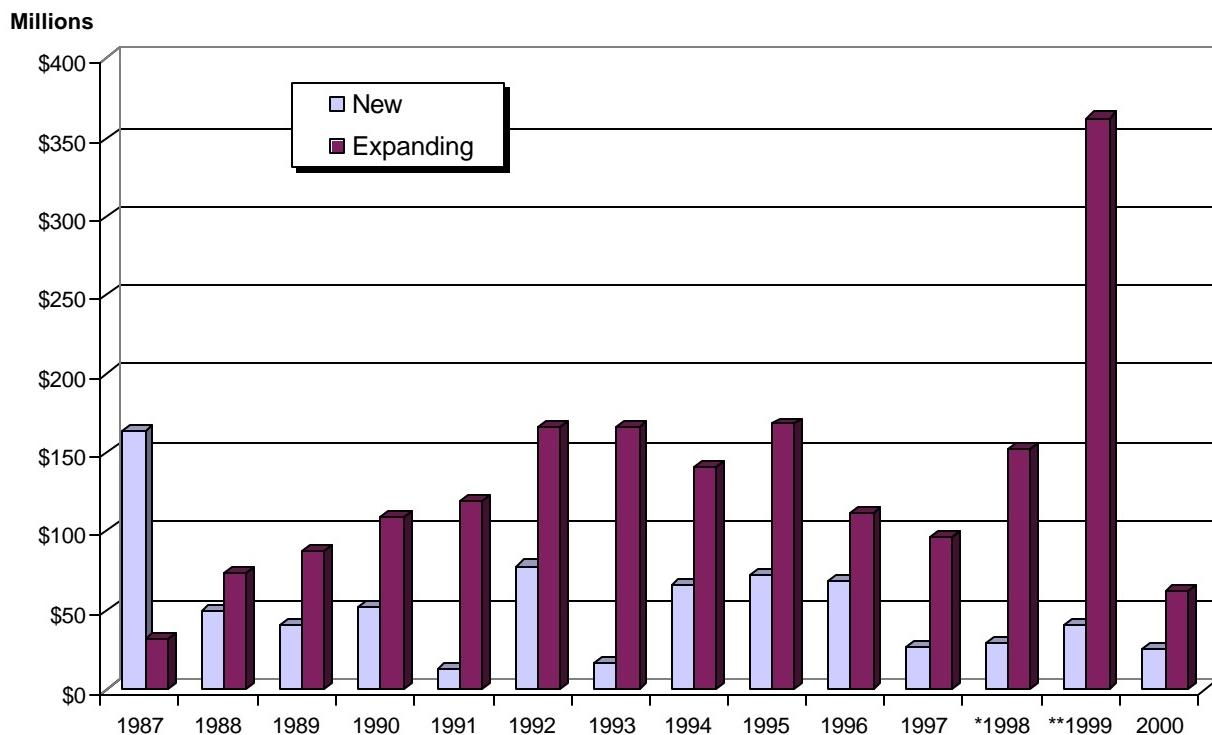
Source: Greensboro Chamber of Commerce, 2001. *FedEx hub NOT included. **Before 1999, High Point was not included in these numbers.

Figure 4-16: Announced Jobs From New & Expanding Businesses in Guilford County, 1987-2000



Source: Greensboro Chamber of Commerce, 2001. *FedEx hub NOT included. **Before 1999, High Point was not included in these numbers.

Figure 4-17: Announced Investment in Guilford County by New & Expanding Businesses, 1987-2000



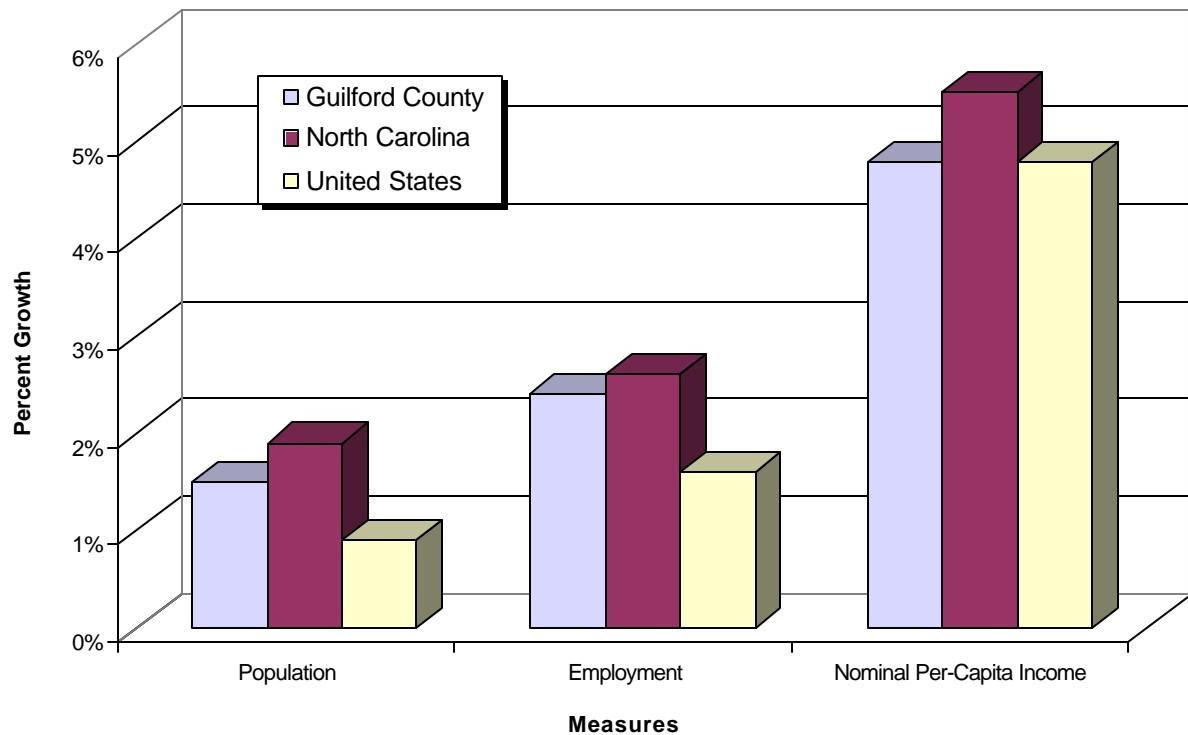
Source: Greensboro Chamber of Commerce, 2001. *FedEx hub NOT included. **Before 1999, High Point was not included in these numbers.

Table 4-21: Percent Growth of Guilford County, 1994-1999

	Guilford County	North Carolina	United States
Population	1.5%	1.9%	0.9%
Employment	2.4%	2.6%	1.6%
Nominal Per-Capita Income	4.8%	5.5%	4.8%

Source: McKinsey & Co., Building Consensus for Greensboro's Future, 2000.

Figure 4-18: Percent Growth of Guilford County, 1994-1999



Source: McKinsey & Co., Building Consensus for Greensboro's Future, 2000.

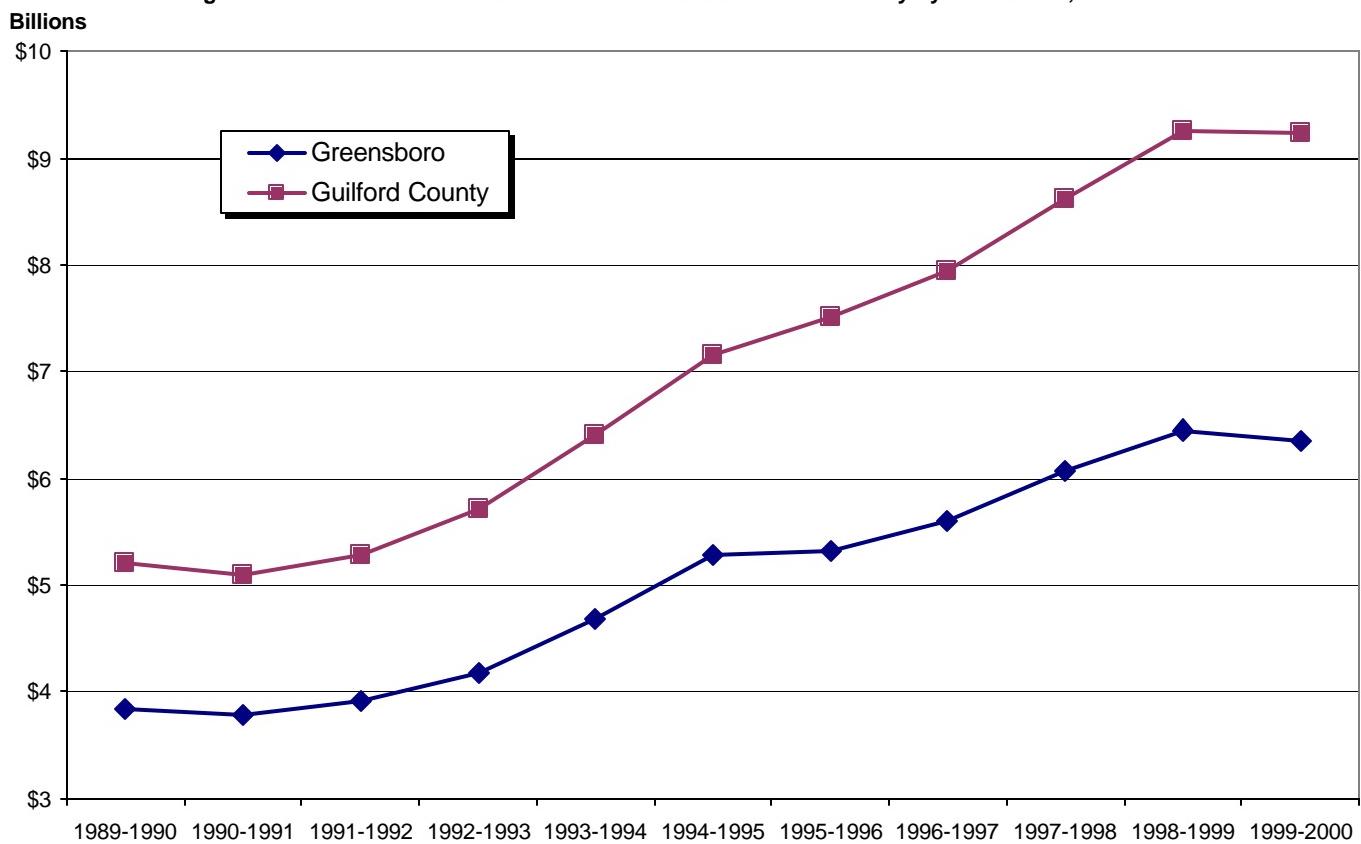
Table 4-22: Greensboro's Place and Importance in the Triad Region, Selected Indicators, 1990-1999	
Greensboro's Proportion of Regional Totals	
Population, 1999	20.3%
Population Growth, 1990-1999	21.9%
Labor Force, 1999	21.0%
Employment, 1999	28.7%
Employment Growth, 1990-1999	33.1%
Number of Businesses, 1999	29.0%
New Businesses, 1990-1999	29.3%
Manufacturing Facilities, 1997	19.8%
Retail Establishments, 1997	25.5%
Retail Sales, 1997	35.4%
Professional, Technical Firms, 1997	33.0%
Greensboro's Proportion of Jobs in the Region by Type, 1997	
Retail	29.7%
Manufacturing	15.9%
Professional, Technical	37.6%
Wholesale Trade	45.9%
Real Estate & Lending	44.2%
Educational Services	47.8%
Health Care & Social Services	32.3%
Arts & Entertainment	25.6%
Accommodations & Food Services	36.7%
Source: NC Office of State Planning, NCESC & US Dept. of Commerce, 1997 Economic Census. 1999 information is as of the 4th quarter, 1999.	

Table 4-23: Gross Retail Sales for Greensboro and Guilford County by Fiscal Year, 1989-2000

Fiscal Year	Greensboro	Guilford County
1989-1990	\$3,830,982,947	\$5,216,685,409
1990-1991	\$3,768,809,302	\$5,102,864,444
1991-1992	\$3,897,081,800	\$5,274,010,271
1992-1993	\$4,172,198,401	\$5,707,615,587
1993-1994	\$4,684,753,591	\$6,407,038,223
1994-1995	\$5,280,097,083	\$7,144,203,860
1995-1996	\$5,325,083,908	\$7,515,662,695
1996-1997	\$5,605,803,443	\$7,937,677,671
1997-1998	\$6,080,301,316	\$8,628,147,735
1998-1999	\$6,450,317,470	\$9,271,941,454
1999-2000	\$6,365,619,467	\$9,243,741,011

Source: NC Department of Revenue, Sales Tax Division. State Sales & Use Tax Statistics by fiscal year, 1990-2001.

Figure 4-19: Gross Retail Sales for Greensboro and Guilford County by Fiscal Year, 1989-2000



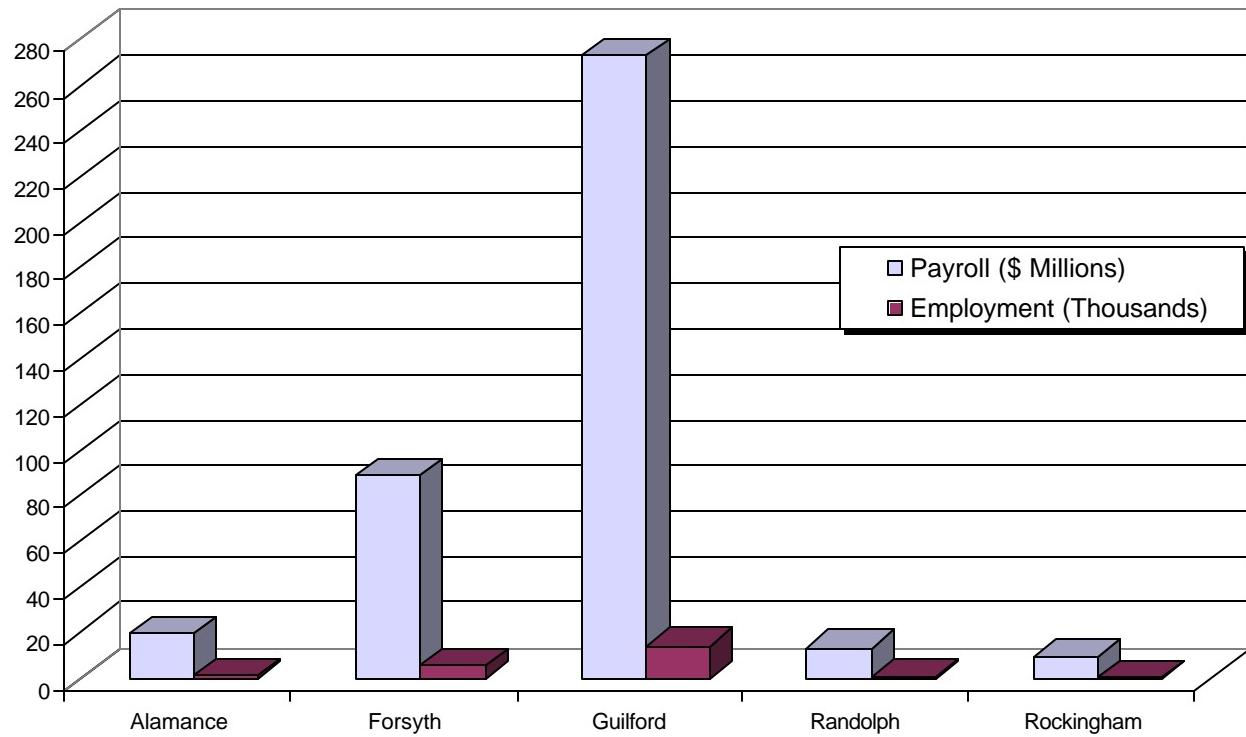
Source: NC Department of Revenue, Sales Tax Division. State Sales & Use Tax Statistics by fiscal year, 1990-2001.

Table 4-24: Triad Regional Economic Impact of Tourism by County, 1995-1999

County	Expenditures (\$ Millions)	Expenditures (% Change)	Payroll (\$ Millions)	Employment (Thousands)	Local Tax Receipts (\$ Millions)
Alamance					
1995	77.61	NA	13.78	1.09	1.22
1996	83.74	7.90%	14.59	1.14	1.34
1997	85.35	1.92%	15.27	1.15	1.34
1998	90.72	6.29%	17.53	1.20	1.49
1999	98.68	8.77%	18.90	1.24	1.95
Forsyth					
1995	358.33	NA	70.68	5.61	6.79
1996	375.78	4.87%	72.08	5.61	7.03
1997	379.20	0.91%	74.86	5.59	6.86
1998	401.35	5.84%	85.24	5.72	7.57
1999	423.34	5.48%	88.55	5.61	8.91
Guilford					
1995	663.81	NA	217.53	12.06	12.92
1996	678.96	2.28%	199.51	11.96	13.73
1997	698.55	2.89%	202.78	12.24	14.41
1998	751.79	7.62%	254.01	13.62	16.51
1999	814.32	8.32%	272.62	14.10	21.08
Randolph					
1995	59.90	NA	11.16	0.87	0.87
1996	60.78	1.47%	10.89	0.82	0.84
1997	62.79	3.31%	11.56	0.84	0.86
1998	66.78	6.35%	13.05	0.86	0.94
1999	69.59	4.21%	13.30	0.81	1.23
Rockingham					
1995	38.01	NA	6.80	0.53	0.78
1996	40.72	7.13%	7.17	0.55	0.83
1997	42.19	3.61%	7.80	0.58	0.88
1998	44.48	5.43%	8.75	0.59	0.92
1999	47.63	7.08%	9.29	0.61	1.29

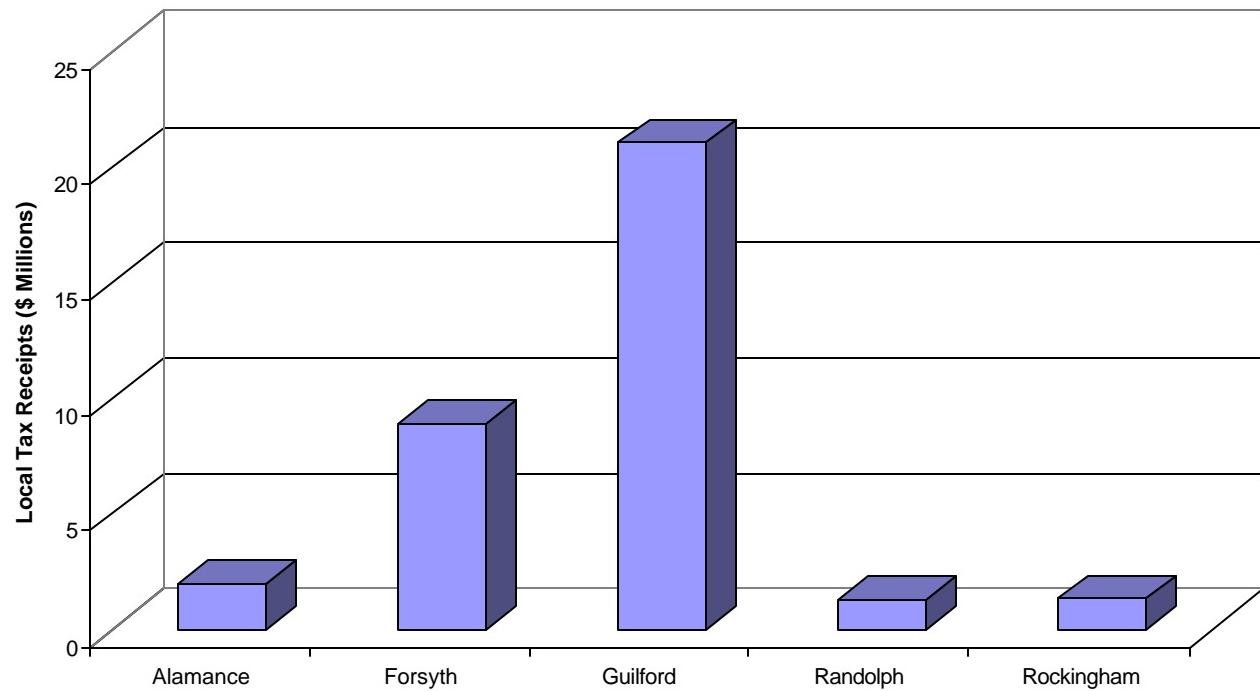
Source: NC Dept. of Commerce. Tourism, 1995-1999, County by County Statistics. 2000.

Figure 4-20: Triad Regional Economic Impact of Tourism by County, 1999



Source: NC Dept. of Commerce. Tourism, 1995-1999, County by County Statistics. 2000.

Figure 4-21: Triad Regional Economic Impact of Tourism by County, 1999



Source: NC Dept. of Commerce. Tourism, 1995-1999, County by County Statistics. 2000.

Chapter 5

Zoning and Land Use

ZONING AND LAND USE: INTRODUCTION

Over the years, the zoning and land development decisions of City officials and developers have created Greensboro's urban form. Urban form refers to the physical composition of the city: how it is laid out, its mix of land uses, zoning pattern, density, and infrastructure.

In 2000, Greensboro's approximately 112 square miles could best be described as decentralized (in Greensboro's case, there are multiple growth areas, not concentrated around the city's downtown/core), with current growth centered in 13 areas as depicted in the development trends map included in this chapter. A detailed land use survey is currently underway and is should be completed in the fall of 2001. The study will show the actual uses of the land, rather than what uses are permitted within each zoning district. One of the uses of this survey is that it will reveal information such as undeveloped acreage. The undeveloped land, in combination with non-residential acreage, will allow more accuracy in determining the number of persons per acre for the City, future residential density, and development capacity.

Several major factors will influence the rate and type of growth Greensboro can expect in the next 20 years. These factors include: environmental constraints (see chapter 7, Natural Environment), availability of water and sewer (see chapter 8, Water and Sewer), major road projects (see chapter 9, Transportation), existing land use patterns and local development regulations and policies.

During the late 1960s and early 1980s, Greensboro conducted an aggressive annexation program. In the early 1980s, the City annexed three areas containing 6,534 acres and a population of 12,885. Since 1993, three major annexations were completed, comprising 7,352 acres and 8,767 persons. Recently, the City annexed Reedy Fork in northeast Greensboro, a predominantly undeveloped area. This area contains approximately 1,800 acres and is projected to eventually have 3,750 housing units.

ZONING AND LAND USE: SUMMARY HIGHLIGHTS

Zoning

In December 2000, the Greensboro city limits encompassed approximately 112 square miles, consisting of 71,854 acres. Approximately 68.2 percent of the city limits was zoned for residential uses, approximately 31.3 percent was zoned for office, commercial, industrial or public/ institutional uses, and 0.5 percent was zoned agriculture. Approximately 3,479 acres (4.8 percent) were in designated parks (see chapter 15, Parks and Recreation).

Residential zoning comprised the greatest proportion of zoning acreage, approximately 68.2 percent, or 49,018 acres (single-family, multi-family and planned unit developments). Of these types of residential zoning, mixed use planned development (PUD) constituted only 4.6 percent, or 3,279 acres. These mixed use PUDs usually include a portion of commercial

and/or office uses within their boundaries and are thus not always entirely residential in nature.

Industrial acreage covered the second highest amount of zoned land, with 18.3 percent or 13,163 acres. The industrial category includes land zoned as corporate park, light, and heavy.

Development

Development patterns in Guilford County during the 1990s reveal that industrial growth was occurring primarily around Piedmont Triad International Airport (PTIA), interstates, and in south High Point. Commercial and/or office development followed or clustered around major thoroughfares.

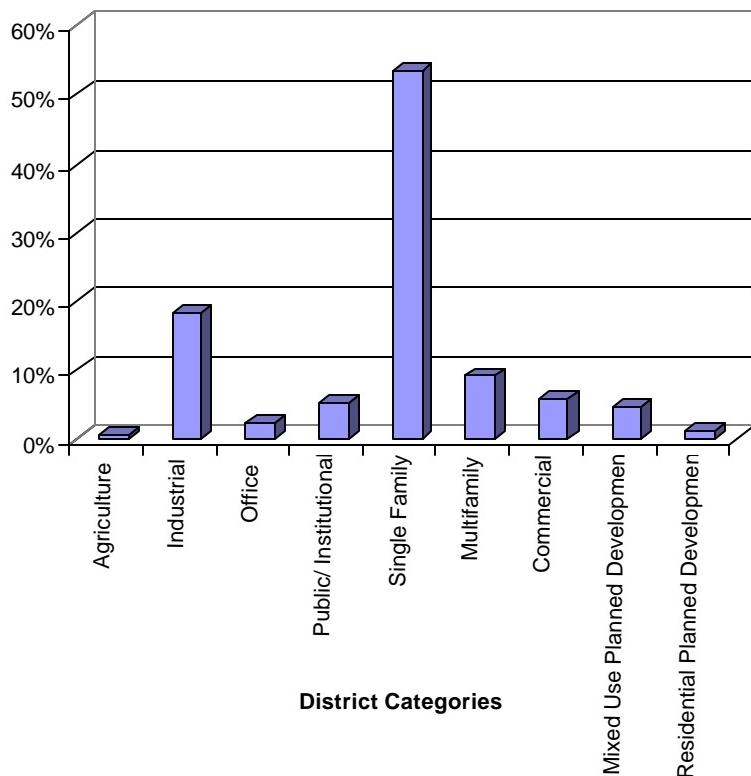
Thirteen growth areas where substantial residential and/or commercial activity is occurring have been identified in Greater Greensboro. These areas include the PTIA vicinity, Jefferson, Wendover and I-40, Grandover, Green Valley, Four Seasons, Downtown, East Market, Morningside (Hope VI), Reedy Fork, Rock Creek Dairy, North Elm/Lake Jeanette, and Highway 68.

Table 5-1: Zoning Distribution in Greensboro, 2000

District Categories	Area (Square Feet)	Acres	Percent
Agriculture	14,452,224	332	0.5%
Industrial	573,393,436	13,163	18.3%
Office	68,508,398	1,573	2.2%
Public/ Institutional	159,541,047	3,663	5.1%
Single Family	1,668,543,655	38,304	53.3%
Multifamily	285,094,261	6,545	9.1%
Commercial	178,791,085	4,104	5.7%
Mixed Use Planned Development	142,836,078	3,279	4.6%
Residential Planned Development	38,780,938	890	1.2%
Totals	3,129,941,123	71,854	100.0%

Source: Greensboro Planning Dept., December 2000.

Figure 5-1: Zoning Distribution in Greensboro, 2000



Source: Greensboro Planning Dept., December 2000.

ZONING DISTRICT DESCRIPTIONS

AGRICULTURAL:

AG AGRICULTURAL DISTRICT

The AG, Agricultural District is primarily intended to accommodate uses of an agricultural nature including farm residences and farm tenant housing. It also accommodates scattered non-farm residences on large tracts of land. It is not intended for major residential subdivisions. The district is established for the following purposes:

- 1) To preserve the use of land for agricultural, forest, and open space purposes until urban development is enabled by the extension of essential urban services;
- 2) To provide for the orderly transition to urban uses by preventing premature conversion of farmland;
- 3) To discourage any use that would create premature or extraordinary public infrastructure and service demands; and
- 4) To discourage scattered commercial and industrial land uses.

SINGLE-FAMILY RESIDENTIAL:

In the following districts the number refers to the minimum lot size in thousands of square feet.

RS-40 RESIDENTIAL SINGLE-FAMILY DISTRICT

The RS-40, Residential Single-family District is primarily intended to accommodate single-family detached dwellings on large lots and is intended solely for properties having one (1) or more of the following characteristics:

- (a) Lies within the 65 Ldn noise contour line;
- (b) Lies in a public water supply watershed and where an outfall to provide public sewer service is not available;
- (c) Lies in a portion of a watershed critical area to which an outfall to provide sewer service has been made available pursuant to an agreement, approved by the City and by another governmental jurisdiction, designed to limit development density to approximately that obtainable prior to sewer service.

RS-30 RESIDENTIAL SINGLE-FAMILY DISTRICT

The RS-30, Residential Single-family District is primarily intended to accommodate low density single-family - detached dwellings on large lots in areas (outside of water supply watersheds and the 65 Ldn airport noise contour) without access to public water and sewer services. The overall gross density in RS-30 areas will typically be 1.3 units per acre or less.

RS-20 RESIDENTIAL SINGLE-FAMILY DISTRICT

The RS-20, Residential Single-family District is primarily intended to accommodate low to moderate density single-family detached dwellings in developments where public sewer service is required. The overall gross density in RS-20 will typically be 1.9 units per acre or less.

RS-15 RESIDENTIAL SINGLE-FAMILY DISTRICT

The RS-15, Residential Single-family District is primarily intended to accommodate moderate density single-family detached dwellings in developments where public water and sewer service is required. The overall gross density in RS-15 will typically be 2.5 units per acre or less.

RS-12 RESIDENTIAL SINGLE-FAMILY DISTRICT

The RS-12, Residential Single-family District is primarily intended to accommodate moderate density single-family detached dwellings in developments where public water and sewer service is required. The overall gross density in RS-12 will typically be 3.0 units per acre or less.

RS-9 RESIDENTIAL SINGLE -FAMILY DISTRICT

The RS-9, Residential Single-family District is primarily intended to accommodate moderate to high density single-family detached dwellings in developments where public water and sewer service is required. The overall gross density in RS-9 will typically be 4.0 units per acre or less.

RS-7 RESIDENTIAL SINGLE -FAMILY DISTRICT

The RS-7, Residential Single-family District is primarily intended to accommodate high density single-family

detached dwellings in developments where public water and sewer service is required. The overall gross density in RS-7 will typically be 5.0 units per acre or less.

RS-5 RESIDENTIAL SINGLE -FAMILY DISTRICT

The RS-5, Residential Single-family District is primarily intended to accommodate high density single-family - detached dwellings in developments where public water and sewer service is required. The overall gross density in RS-5 will typically be 7.0 units per acre or less.

MULTIFAMILY RESIDENTIAL:

In the following districts the number refers to the maximum number of dwelling units per acre (after the first acre). Public water and sewer service is required in all districts.

RM-5 RESIDENTIAL MULTIFAMILY DISTRICT

The RM-5, Residential Multifamily District is primarily intended to accommodate duplexes, twin homes, town-houses, cluster housing, and similar residential uses at a density of 5.0 units per acre or less.

RM-8 RESIDENTIAL MULTIFAMILY DISTRICT

The RM-8, Residential Multifamily District is primarily intended to accommodate duplexes, twin homes, town-houses, cluster housing, and similar residential uses at a density of 8.0 units per acre or less.

RM-12 RESIDENTIAL MULTIFAMILY DISTRICT

The RM-12, Residential Multifamily District is primarily intended to accommodate multifamily uses at a density of 12.0 units per acre or less.

RM-18 RESIDENTIAL MULTIFAMILY DISTRICT

The RM-18, Residential Multifamily District is primarily intended to accommodate multifamily uses at a density of 18.0 units per acre or less.

RM-26 RESIDENTIAL MULTIFAMILY DISTRICT

The RM-26, Residential Multifamily District is primarily intended to accommodate multifamily uses at a density of 26.0 units per acre or less.

OFFICE:

LO LIMITED OFFICE DISTRICT

The LO, Limited Office District is primarily intended to accommodate low intensity medical, professional, administrative, and government office uses on small to mid-sized sites near residential areas.

GO-M GENERAL OFFICE MODERATE INTENSITY DISTRICT

The GO-M, General Office Moderate Intensity District is primarily intended to accommodate moderate intensity office and institutional uses, moderate density residential uses at a density of 12.0 units per acre or less, and supporting service and retail uses.

GO-H GENERAL OFFICE HIGH INTENSITY DISTRICT

The GO, General Office High Intensity District is primarily intended to accommodate high intensity office and institutional uses, high density residential uses at a density of 26.0 units per acre or less, and supporting service and retail uses.

COMMERCIAL:

NB NEIGHBORHOOD BUSINESS DISTRICT

The NB, Neighborhood Business District is primarily intended to accommodate very low intensity office, retail, and personal service uses within residential areas. The district is established to provide convenient locations for businesses which serve the needs of surrounding residents without disrupting the character of the neighborhood. It is not intended to accommodate retail uses which primarily attract passing motorists. Compatibility with nearby residences is reflected in design standards for both site layout and buildings.

LB LIMITED BUSINESS DISTRICT

The LB, Limited Business District is primarily intended to accommodate moderate intensity shopping and services close to residential areas. The district is established to provide locations for businesses which serve nearby neighborhoods. The district is typically located near the intersection of collectors or thoroughfares in areas which are otherwise developed with residences.

GB GENERAL BUSINESS DISTRICT

The GB, General Business District is primarily intended to accommodate a wide range of retail, service, and office uses. The district is typically located along thoroughfares in areas which have developed with minimal front setbacks.

HB HIGHWAY BUSINESS DISTRICT

The HB, Highway Business District is primarily intended to accommodate retail, service, and distributive uses which are typically located along thoroughfares. The district is established to provide locations for establishments which cater primarily to passing motorists and require high visibility and good road access. Developments in this district generally have substantial front setbacks.

CB CENTRAL BUSINESS DISTRICT

The CB, Central Business District is solely intended for application in the central core of the City. The district is established to encourage high intensity, compact urban development. The district is intended to accommodate a wide range of uses including office, retail, service, institutional, and high density residential developments in a pedestrian-oriented setting.

SC SHOPPING CENTER DISTRICT

The SC, Shopping Center District is primarily intended to accommodate a wide range of high intensity retail and service developments meeting the shopping needs of the community and the region. The district is established on large sites to provide locations for major developments which contain multiple uses, shared parking and drives, and coordinated signage and landscaping.

INDUSTRIAL:

CP CORPORATE PARK DISTRICT

The CP, Corporate Park District is primarily intended to accommodate office, warehouse, research and development, and assembly uses on large sites in a planned, campus-like setting compatible with adjacent residential uses. The district may also contain retail and service uses which customarily locate within planned employment centers.

LI LIGHT INDUSTRIAL DISTRICT

The LI, Light Industrial District is primarily intended to accommodate limited manufacturing, wholesaling, warehousing, research and development, and related commercial/ service activities which in their normal operations, have little or no adverse effect upon adjoining properties.

HI HEAVY INDUSTRIAL DISTRICT

The HI, Heavy Industrial District is primarily intended to accommodate a wide range of assembling, fabricating, and manufacturing activities. The district is established for the purpose of providing appropriate locations and development regulations for uses which may have significant environmental impacts or require special measures to ensure compatibility with adjoining properties.

PUBLIC AND INSTITUTIONAL:

PI PUBLIC AND INSTITUTIONAL DISTRICT

The PI, Public and Institutional District is intended to accommodate mid- and large-sized public, quasi-public, and institutional uses which have a substantial land use impact or traffic generation potential. It is not intended for smaller public and institutional uses customarily found within residential areas.

TN1 Traditional Neighborhood District

The TN1 Traditional Neighborhood District is intended to establish land use and design standards to be applied specifically in neighborhoods where a variety of uses are permissible in accordance with general standards.

TN1 Districts are designed to be walkable, pedestrian-and-transit-oriented communities which must include a variety of building types in accordance with an approved Traditional Neighborhood Development Plan.

PLANNED UNIT DEVELOPMENT:

CU-PDR

CONDITIONAL USE - PLANNED UNIT DEVELOPMENT -

RESIDENTIAL DISTRICT

The CU-PDR, Conditional Use - Planned Unit Development - Residential District is intended to accommodate a variety of housing types developed on large tracts in accordance with a Unified Development Plan. The CU-PDR District also accommodates neighborhood business and office uses which primarily serve nearby residents.

CU-PDM

CONDITIONAL USE - PLANNED UNIT DEVELOPMENT -

MIXED DISTRICT

The CU-PDM, Conditional Use-Planned Unit Development-Mixed District is intended to accommodate residential, commercial, and light industrial uses developed on large tracts in accordance with a Unified Development Plan.

CU-PDI

CONDITIONAL USE - PLANNED UNIT DEVELOPMENT -

INFILL DISTRICT

The CU-PDI, Conditional Use - Planned Unit Development - Infill District is intended to accommodate residential, commercial, office, and neighborhood business uses developed on small tracts of land as infill development within currently built up areas in accordance with a Unified Development Plan.

Chapter 6

Residential and Commercial Development

RESIDENTIAL AND COMMERCIAL DEVELOPMENT: INTRODUCTION

Residential and commercial growth over the past 20 years has been responsible for changing Greensboro's urban form from a compact, traditional city to a more decentralized pattern. In Greensboro's case, this means the City has multiple growth areas not concentrated around the downtown core.

This chapter focuses on two of the many forces that have reshaped Greensboro, the nature of residential and commercial property development. Data is presented on housing types and tenure, housing construction costs, housing stock age, home sales prices, and the location of historic districts.

Also included in the chapter are industrial, office, and retail market data for Guilford County. Comparisons are also made between Greensboro and selected cities.

RESIDENTIAL AND COMMERCIAL DEVELOPMENT: SUMMARY HIGHLIGHTS

Type and Tenure

In 1990, according to the United States Census Bureau, there were 80,411 dwelling units in Greensboro, with a population of 183,894. According to the 2000 Census, there were 99,305 dwelling units for a population of 223,891. According to the 1990 Census, 82 percent of Greensboro's dwelling units have been built since 1950, with approximately 42 percent built between 1960 and 1979.

In 1990, two-bedroom housing units were 50.9 percent of the rental market, (17,674 units) while three-bedroom units comprised 54.7 percent of the owner occupied units (21,981).

Both the average size of a home in square feet and the median lot size were the same in 1999 as they were in pre-1900 Greensboro, after variations during the intervening years.

Among Greensboro housing units, the vacancy rate was highest for the studio (0 bedrooms) and lowest for the five+ bedroom category. One- and two-bedroom units had the same vacancy rates. In 1990, 74,905 of the 80,411 dwelling units in the City of Greensboro were occupied. The total average vacancy rate was 7.2 percent. Of the total units occupied, 40,201 were owned, rather than rented.

During the fall of 2000, the vacancy rate for the Greensboro apartment market was 6 percent overall with an average monthly rent of \$612.

Of North Carolina comparison cities in 2000, regional apartment vacancy rates were highest in Winston-Salem (8.0 percent) followed by Raleigh (7.6 percent) and Charlotte (6.6 percent). Greensboro's apartment market had an overall vacancy rate of 6.0 percent compared to the average of 6.7 percent for all North Carolina comparison cities.

Subsidized housing included 224 beds for the homeless and 2,485 units for low-income residents of Greensboro.

Housing Construction

Eighty-two percent of Greensboro's dwelling units have been built since 1950, with approximately 42 percent built between 1960 and 1979.

In 1999, Greensboro ranked lowest in the average cost of new single family structures (\$100,757) when compared to the North Carolina comparison cities. Knoxville, TN (\$66,975) ranked lowest of both North Carolina and out-of-state comparison cities. The most expensive of all the municipalities for new housing construction was Charlotte (\$204,595), followed by Raleigh (\$196,168).

In 1999, Greensboro also ranked lowest in average cost of new single family construction when compared to Triad regional counties. Guilford County exceeded Greensboro's construction costs by \$11,659. The highest Triad regional average cost of new housing construction during the period from 1990-1999 was found in Alamance County, at \$120,041.

Greensboro experienced continuous growth in housing construction costs from 1990-1997, seeing its highest cost of the period in 1998. A decrease in costs occurred in 1997 (3.4 percent), and in 1999 there was a more significant decline (8.4 percent) for the City.

In Greensboro, single-family construction activity based on permits issued has increased primarily around the City's perimeter from 1992-2000. Of this area, the highest activity was found in the North (Lake Jeanette, The Orchard) and Southwest (Adams Farm).

Housing Sales

In Greensboro, zip code 27405 in the Northeast had the lowest sales price of homes in 2000 (\$93,874). However, when compared countywide, zip code 27260 in High Point had the lowest average sales price (\$58,648). The Lake Jeanette area (27455) had the highest average sales prices within Greensboro (\$216,257), as compared to the highest average sales price in Northwest Guilford County, which was Oak Ridge (\$261,678), zip code 27310.

According to the Housing Opportunity Index: Fourth Quarter 2000 Report, the Greensboro-Winston-Salem-High Point, NC MSA had a larger share of affordable homes for households earning the area's median family income than both the Charlotte-Gastonia-Rock Hill, NC-SC and the Raleigh-Durham-Chapel Hill, NC MSAs.

Historic Districts

There are two types of historic districts: Local Historic Districts and National Register Historic Districts; both are found in Greensboro. Local Districts and Guilford County Landmark Properties are overlay-zoning districts that require a Certificate of Appropriateness prior to making any exterior changes. Exterior changes must adhere to design guidelines.

National Register Historic Districts, Landmarks, and Properties are listed on the National Register of Historic Places. A National Register listing places no restrictions on private property but it does make owners of historic properties eligible for federal and state rehabilitation tax credits.

Greensboro currently has three Local Historic Districts and 11 National Register Historic Districts. College Hill, Fisher Park, and Charles B. Aycock are both Local and National Register districts. However, Local and National Register boundaries are different, and the official name of the National Register district in the Charles B. Aycock neighborhood is the Summit Avenue Historic District.

Office and Industrial Space

Office

The amount of rentable square feet of office space in Guilford County increased by 1,746,338 feet between 1996 and 2000. During that same period, the percentage of vacant square feet increased from 13.03 percent in 1996 to 15.95 percent in 2000.

Geographically, over the period from 1996-2000, Greensboro's Central Business District (CBD), or Downtown, had more vacant office space than the other county regions. However, its vacancy rate decreased from 21.47 percent in 1996 to 20.82 percent in 2000. On the other hand, in 1999 and 2000, the highest percentages of vacant space occurred in Southwest Greensboro and Southeast Greensboro, respectively. The Guilford County region with the lowest percentage of vacant office space varied in most years. In 1996, it was in the PTIA region; in 1997, it was in Southeast Greensboro; in 1999-2000, the region was High Point.

Industrial

The amount of rentable square feet of industrial space in Guilford County increased modestly by only 247,459 square feet between the years 1996 and 2000. This occurred in spite of decreases in rentable space during 1997-1998. Between 1996 and 2000, the percentage of vacant square feet declined from 21.70 percent to 14.70 percent.

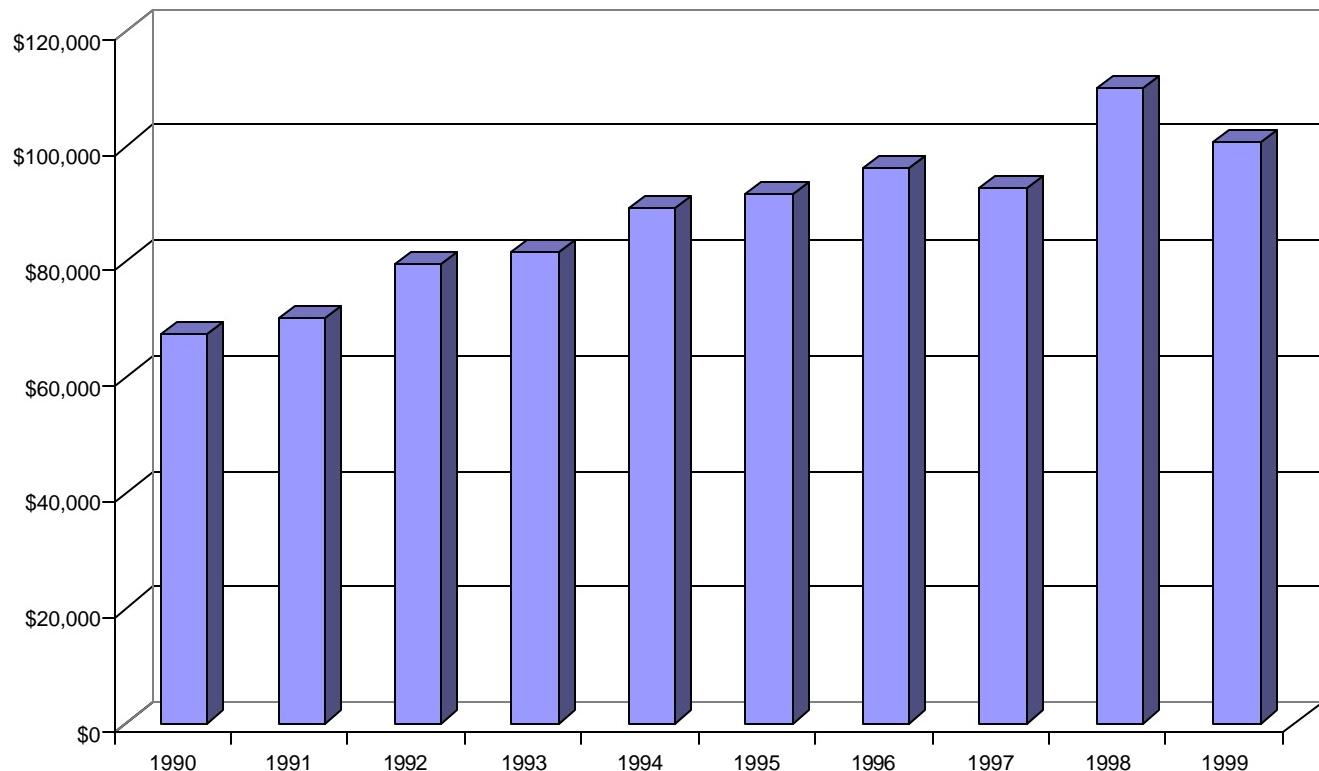
Geographically during the years 1996-2000, Northeast Greensboro had a higher industrial vacancy rate than the other county regions. From 1998-2000, rentable industrial space was not available in Northwest Guilford County.

Table 6-1: Average Cost* of New Housing Construction in Greensboro (Site Built Houses Only, Land Cost Not Included, No Mobile Homes), 1990-1999

Year	Cost	Rate of Change (Annual)
1990	\$67,302	NA
1991	\$70,252	4.4%
1992	\$79,512	13.2%
1993	\$81,765	2.8%
1994	\$89,324	9.2%
1995	\$91,718	2.7%
1996	\$96,092	4.8%
1997	\$92,809	-3.4%
1998	\$109,937	18.5%
1999	\$100,757	-8.4%
Overall Rate of Change, 1990-99		49.7%

Source: NC Dept. of Labor, "Construction Authorized in NC Counties & Cities", 1990-2000. *Calculation of new residential construction cost based on building permits issued for single family units.

Figure 6-1: Average Cost* of New Housing Construction in Greensboro (Site Built Houses Only, Land Cost Not Included, No Mobile Homes), 1990-1999



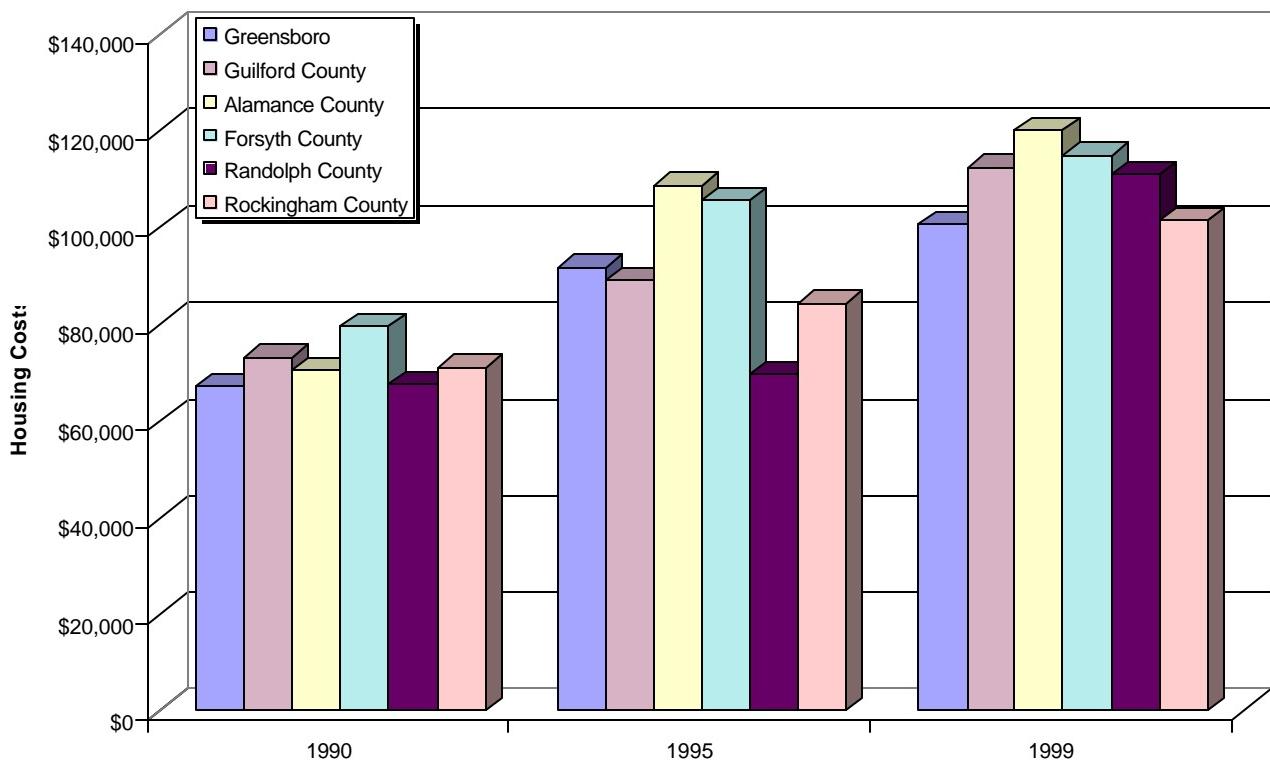
Source: NC Dept. of Labor, "Construction Authorized in NC Counties & Cities", 1990-2000. *Calculation of new residential construction cost based on building permits issued for single family units.

Table 6-2: Triad Regional Average Cost* of New Housing Construction (Site Built Houses Only, Land Cost Not Included, No Mobile Homes), 1990-1999

Year	Greensboro	Guilford County	Alamance County	Forsyth County	Randolph County	Rockingham County
1990	\$67,302	\$73,226	\$70,441	\$79,422	\$67,462	\$71,035
1991	\$70,252	\$75,370	\$83,527	\$84,795	\$62,675	\$66,787
1992	\$79,512	\$79,298	\$90,535	\$89,049	\$63,743	\$66,546
1993	\$81,765	\$79,649	\$92,919	\$99,457	\$68,475	\$70,467
1994	\$89,324	\$86,864	\$96,334	\$105,201	\$70,581	\$73,813
1995	\$91,718	\$89,207	\$108,771	\$105,694	\$69,601	\$84,321
1996	\$96,092	\$97,458	\$109,392	\$117,342	\$72,380	\$88,555
1997	\$92,809	\$102,047	\$111,323	\$99,746	\$86,167	\$93,023
1998	\$109,937	\$112,133	\$102,405	\$109,738	\$106,722	\$98,099
1999	\$100,757	\$112,416	\$120,041	\$114,852	\$110,874	\$101,551

Source: NC Dept. of Labor, "Construction Authorized in NC Counties & Cities", quarterly publications, 1990-2000. Note: Calculation of new residential construction cost based on building permits issued for single family units.

Figure 6-2: Triad Regional Average Cost* of New Housing Construction (Site Built Houses Only, Land Cost not Included, No Mobile Homes), 1990-1999



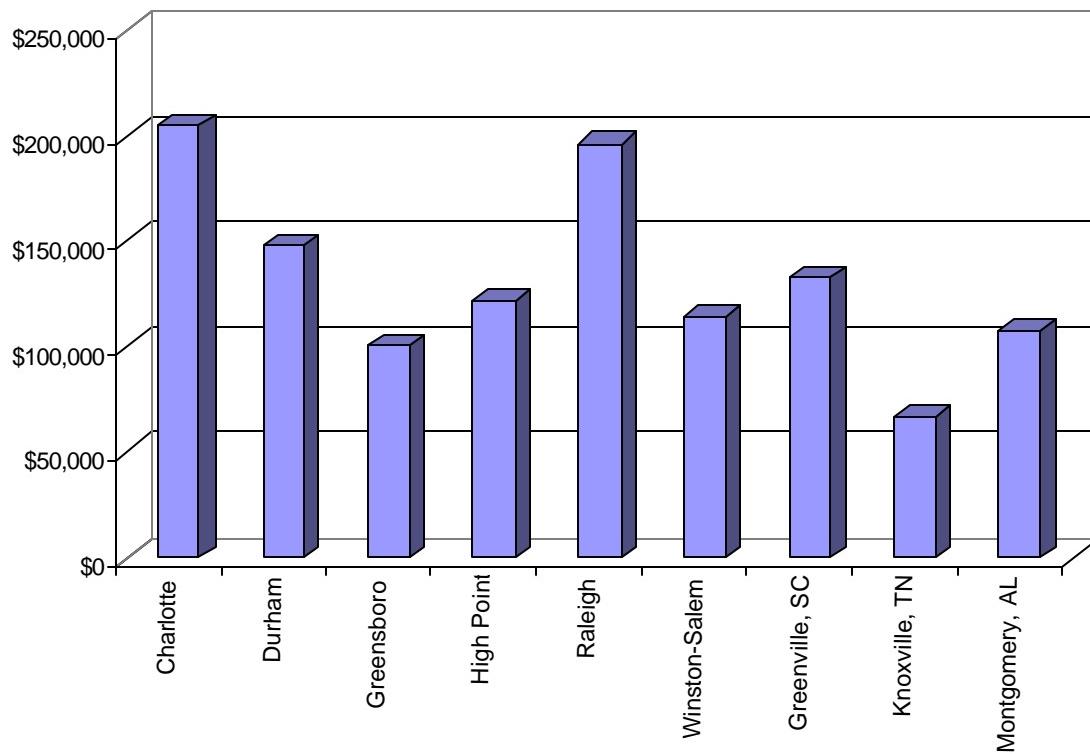
Source: NC Dept. of Labor, "Construction Authorized in NC Counties & Cities", quarterly publications, 1990-2000. Note: Calculation of new residential construction cost based on building permits issued for single family units.

Table 6-3: Average Cost* of New Housing Construction in Selected Municipalities (Site Built Houses Only, Land Cost not Included, No Mobile Homes), 1999

NC Municipalities	Cost
Charlotte	\$204,595
Durham	\$148,299
Greensboro	\$100,757
High Point	\$121,800
Raleigh	\$196,168
Winston-Salem	\$114,215
Out-of-State Municipalities	Cost
Greenville, SC	\$132,711
Knoxville, TN	\$66,975
Montgomery, AL	\$107,384

Source: NC Dept. of Commerce, "Construction Authorized in NC Counties & Cities", 2000; also, SC, TN, & AL Departments of Commerce. *Calculation of cost based on building permits issued for single family units.

Figure 6-3: Average Cost* of New Housing Construction in Selected Municipalities (Site Built Houses Only, Land Cost not Included, No Mobile Homes), 1999



Source: NC Dept. of Commerce, "Construction Authorized in NC Counties & Cities", 2000; also, SC, TN, & AL Departments of Commerce. *Calculation of cost based on building permits issued for single family units.

Table 6-4: Average Sales Prices of Homes by Zip Code in Guilford County*, 2000

Zip Code	Community	Price
27214	Browns Summit	\$151,591
27260	High Point	\$58,648
27262	High Point	\$119,633
27263	High Point / Archdale	\$89,116
27265	High Point	\$146,044
27282	Jamestown	\$177,098
27301	McLeansville	\$152,078
27310	Oak Ridge	\$261,678
27313	Pleasant Garden	\$149,477
27357	Stokesdale	\$190,262
27358	Summerfield	\$248,746
27377	Whitsett	\$249,380
27401	Greensboro	\$101,773
27403	Greensboro	\$135,771
27405	Greensboro	\$93,874
27406	Greensboro	\$116,602
27407	Greensboro	\$157,243
27408	Greensboro	\$211,498
27409	Greensboro	\$150,423
27410	Greensboro	\$210,079
27455	Greensboro	\$216,257

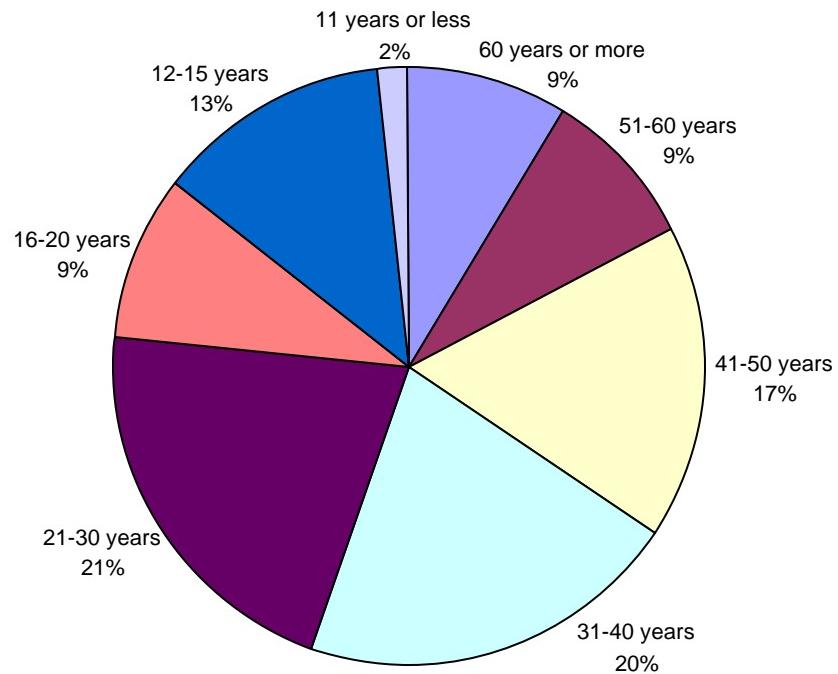
Source: Greensboro Regional Realtors Association, 2000. *Zip codes with 25 or more home sales Jan 1, 2000-Sept 30, 2000. Average sales price for all homes in Guilford County=\$165,350.

Table 6-5: Greensboro Housing Stock Age Distribution, Pre-1940 to 1990

Year Built	Age	Total Units	Percent
Before 1940	60 years or more	7,062	8.8%
1940 to 1949	51-60 years	7,024	8.7%
1950 to 1959	41-50 years	13,688	17.0%
1960 to 1969	31-40 years	16,758	20.8%
1970 to 1979	21-30 years	16,871	21.0%
1980 to 1984	16-20 years	7,505	9.3%
1985 to 1988	12-15 years	10,196	12.7%
1989 to March 1990	11 years or less	1,307	1.6%

Source: US Census Bureau, 1940-1990 Census of Population & Housing.

Figure 6-4: Greensboro Housing Stock Age Distribution, Pre-1940 to 1990



Source: US Census Bureau, 1940-1990 Census of Population & Housing.

Table 6-6: Greensboro Housing Units by Number of Bedrooms, Ownership, and Vacancy, 1990							
Bedrooms	0	1	2	3	4	5+	Total/Average
Rented	1,090	8,744	17,674	6,235	731	230	34,704
Owned	13	419	8,866	21,981	7,254	1,668	40,201
Total Occupied	1,103	9,163	26,540	28,216	7,985	1,898	74,905
Vacant	169	1,017	2,623	1,318	295	84	5,506
Vacancy Rate	10.9%	9.2%	9.2%	6.2%	1.7%	1.6%	7.2%
Total Units	1,272	10,180	29,163	29,534	8,280	1,982	80,411

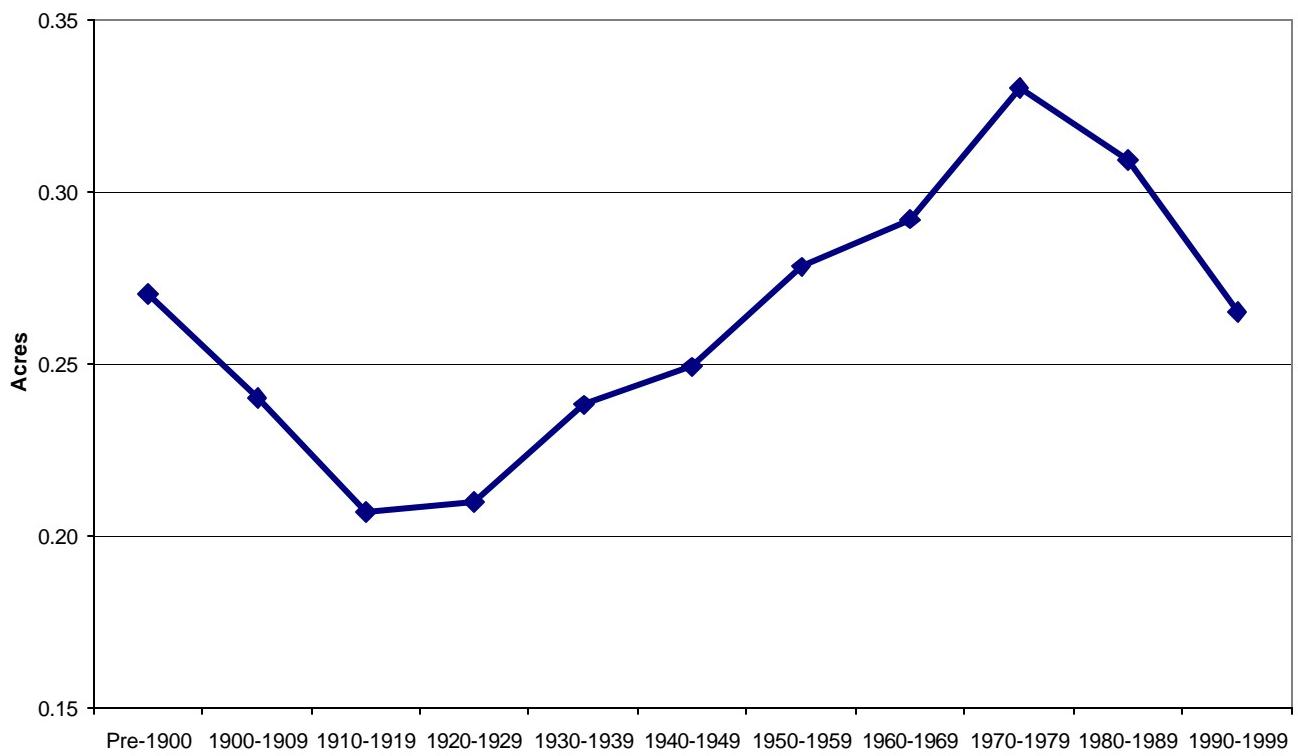
Source: US Census Bureau, US Department of Housing and Urban Development. 1990.

Table 6-7: Existing Single Family Detached Homes in Greensboro, Pre-1900 to 1999

Years	Number of Parcels in Study	Average Tax Value	Average Heated Square Feet	Median Lot Size (Acres)
Pre-1900	48	85,450	1,866	0.27
1900-1909	359	51,500	1,502	0.24
1910-1919	696	56,250	1,478	0.21
1920-1929	2,540	60,700	1,361	0.21
1930-1939	2,868	54,100	1,203	0.24
1940-1949	4,322	58,900	1,126	0.25
1950-1959	11,410	65,400	1,184	0.28
1960-1969	10,477	78,600	1,493	0.29
1970-1979	6,447	97,700	1,676	0.33
1980-1989	6,069	108,100	1,660	0.31
1990-1999	6,431	133,500	1,866	0.27

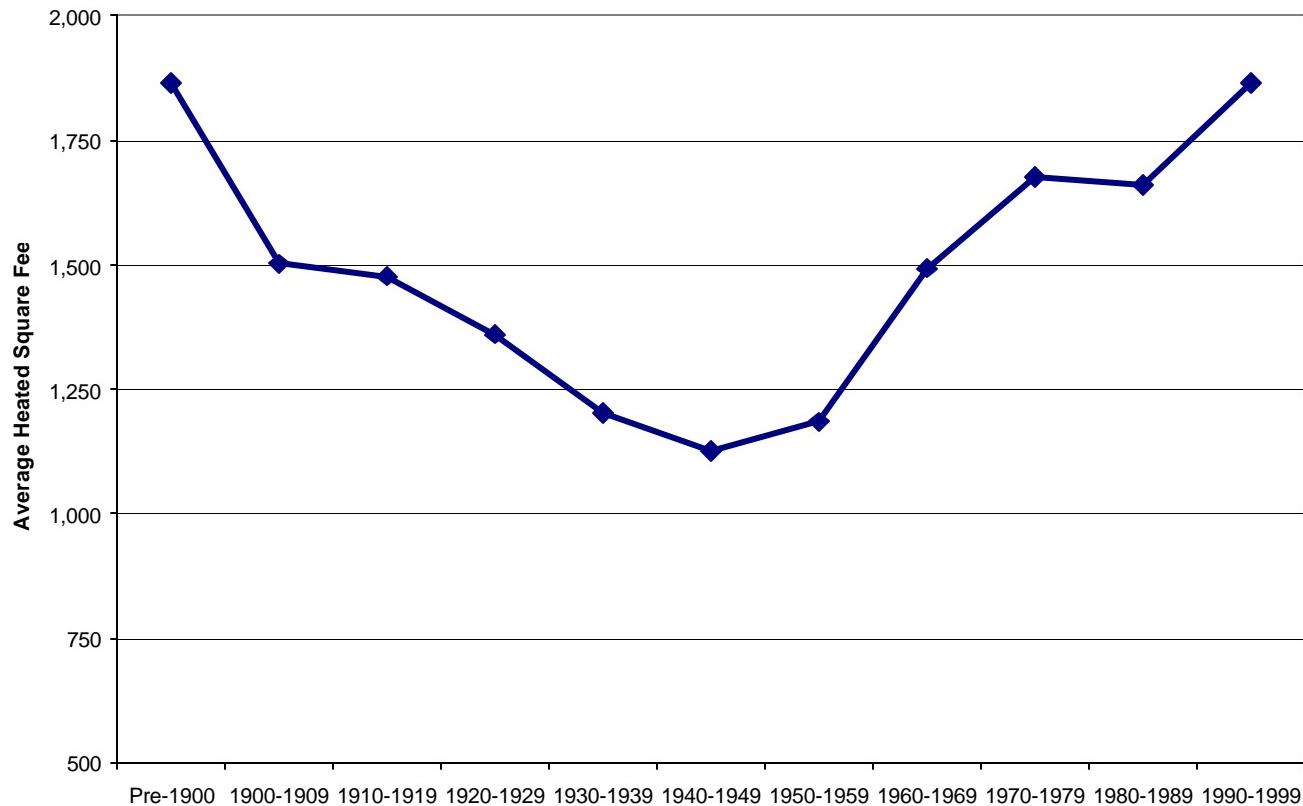
Source: Carolinas Real Data, 2000; Guilford County Tax Department, Tax Parcel Database, 2000; Greensboro Planning Department, 2000.

Figure 6-5: Existing Single Family Detached Homes in Greensboro, Median Lot Size, Pre-1900 to 1999



Source: Carolinas Real Data, 2000; Guilford County Tax Department, Tax Parcel Database, 2000; Greensboro Planning Department, 2000

Figure 6-6: Existing Single Family Detached Homes in Greensboro, Median Size, Pre-1900 to 1999



Source: Carolinas Real Data, 2000; Guilford County Tax Department, Tax Parcel Database, 2000; Greensboro Planning Department, 2000

Table 6-8: Greensboro Housing Units, 1950-1990						
Housing	1950		1960		1990	
	Total	Percent	Total	Percent	Total	Percent
Single Units	12,413	63.5%	29,673	83.6%	34,748	76.3%
Multi-Units	7,126	36.5%	5,821	16.4%	10,799	23.7%
Total Units	19,539	100.0%	35,508	100.0%	45,558	100.0%

Source: US Census Bureau, 1950-1990 Census of Population & Housing.

Figure 6-7: Greensboro Housing Units, 1950-1990

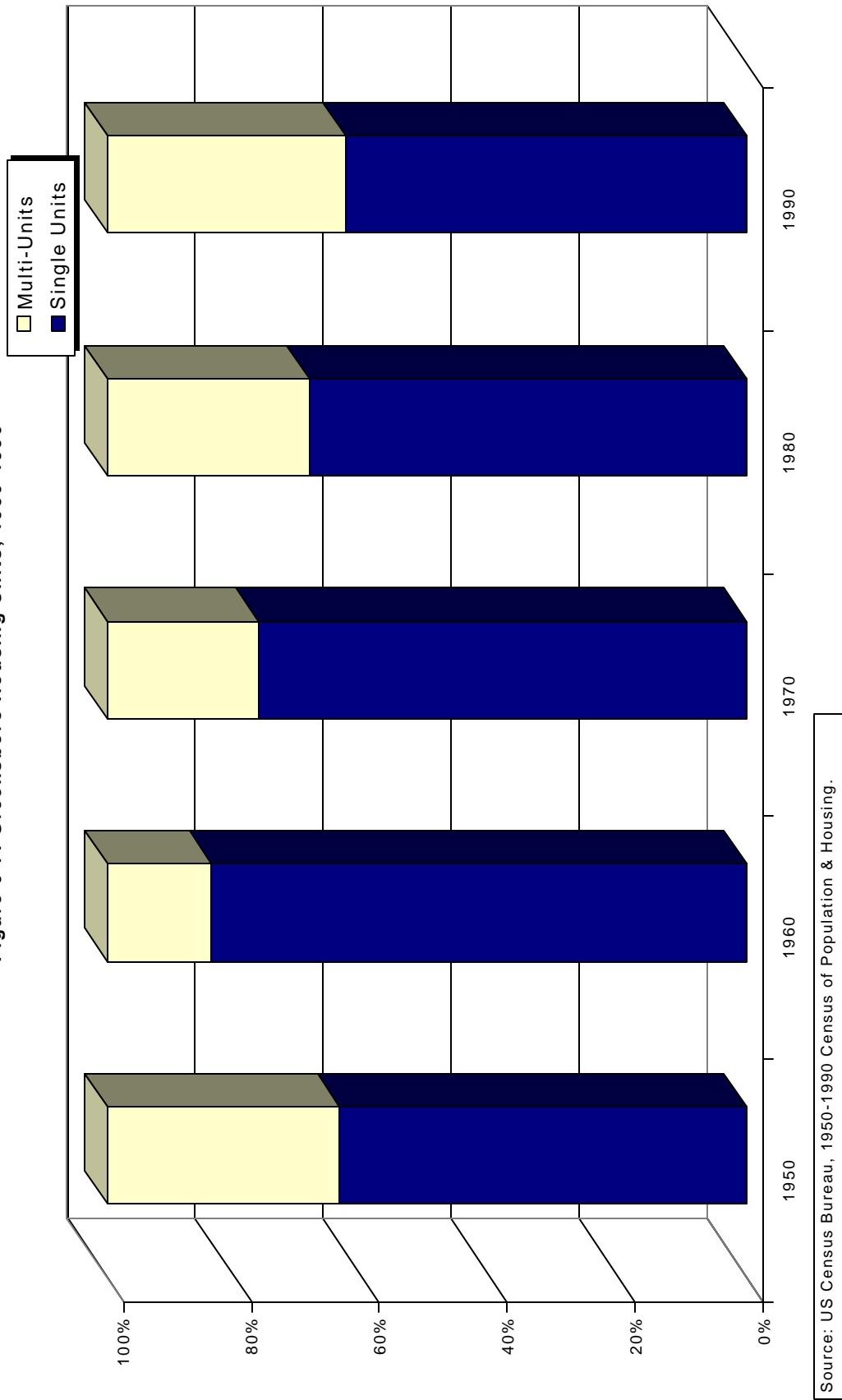
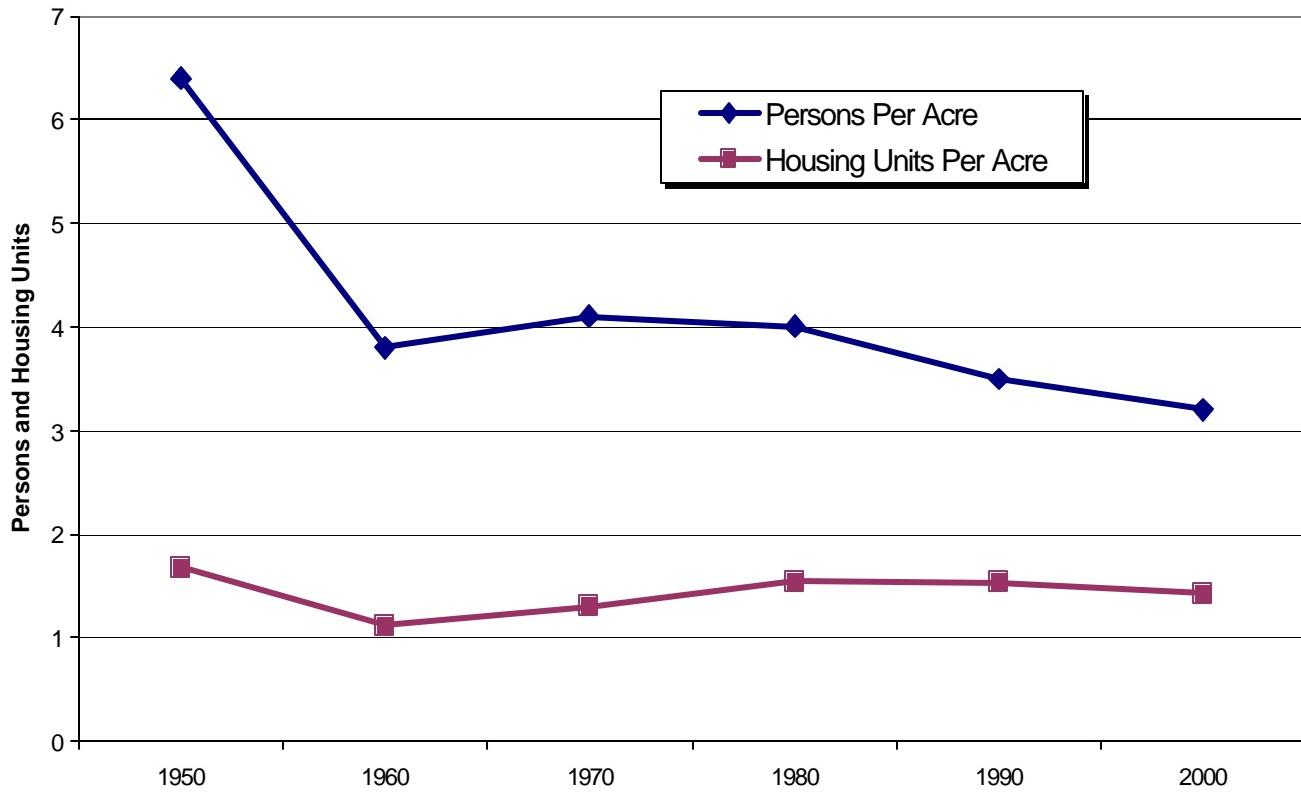


Table 6-9: Greensboro Population and Housing, 1950-2000

Year	Population			Housing		
	Population	Land Area	Persons Per Acre	Total Housing Units	Persons Per Household	Housing Units Per Acre
1950	74,389	11,646	6.40	19,539	3.10	1.68
1960	119,574	31,802	3.80	35,508	3.10	1.12
1970	144,076	35,027	4.10	45,558	2.80	1.30
1980	155,642	38,852	4.00	59,859	2.26	1.54
1990	183,864	52,344	3.50	80,411	2.33	1.54
2000	223,891	69,928	3.20	99,305	2.30	1.42

Source: Source: US Census Bureau, 1950-2000 Census of Population & Housing.

Figure 6-8: Greensboro Population and Housing, 1950-2000



Source: Source: US Census Bureau, 1950-2000 Census of Population & Housing.

Table 6-10: Cumulative Gain in Greensboro Housing Units, 1970-2000

Annual Gains	Single Family	Multi-family	Total	Demolition	Net Gain	Cumulative Total
1970	738	1,227	1,965	407	1,558	1,558
1971	925	2,379	3,304	206	3,098	4,656
1972	778	3,047	3,825	186	3,639	8,295
1973	681	1,457	2,138	123	2,015	10,310
1974	359	357	716	112	604	10,914
1975	337	160	497	59	438	11,352
1976	425	80	505	81	424	11,776
1977	534	415	949	146	803	12,579
1978	581	274	855	123	732	13,311
1979	496	549	1,045	57	988	14,299
1980	466	308	774	122	652	14,951
1981	278	372	650	89	561	15,512
1982	258	529	787	57	730	16,242
1983	437	566	1,003	18	985	17,227
1984	454	1,102	1,556	53	1,503	18,730
1985	612	2,273	2,885	58	2,827	21,557
1986	682	1,441	2,123	32	2,091	23,648
1987	656	1,554	2,210	21	2,189	25,837
1988	627	501	1,128	70	1,058	26,895
1989	686	483	1,169	27	1,142	28,037
1990	471	226	697	11	686	28,723
1991	485	185	670	98	572	29,295
1992	555	199	754	101	653	29,948
1993	678	262	940	122	818	30,766
1994	686	227	913	16	897	31,663
1995	708	303	1,011	68	943	32,606
1996	811	692	1,503	77	1,426	34,032
1997	761	1,989	2,750	30	2,720	36,752
1998	888	214	1,102	110	992	37,744
1999	753	392	1,145	85	1,060	38,804
2000	733	444	1,177	54	1,123	39,927
Total Units*	18,539	24,207	42,746	2,819	39,927	NA

Source: Greensboro Planning Dept. *As of 2000.

Figure 6-9: Cumulative Gain in Greensboro Housing Units, 1970-2000

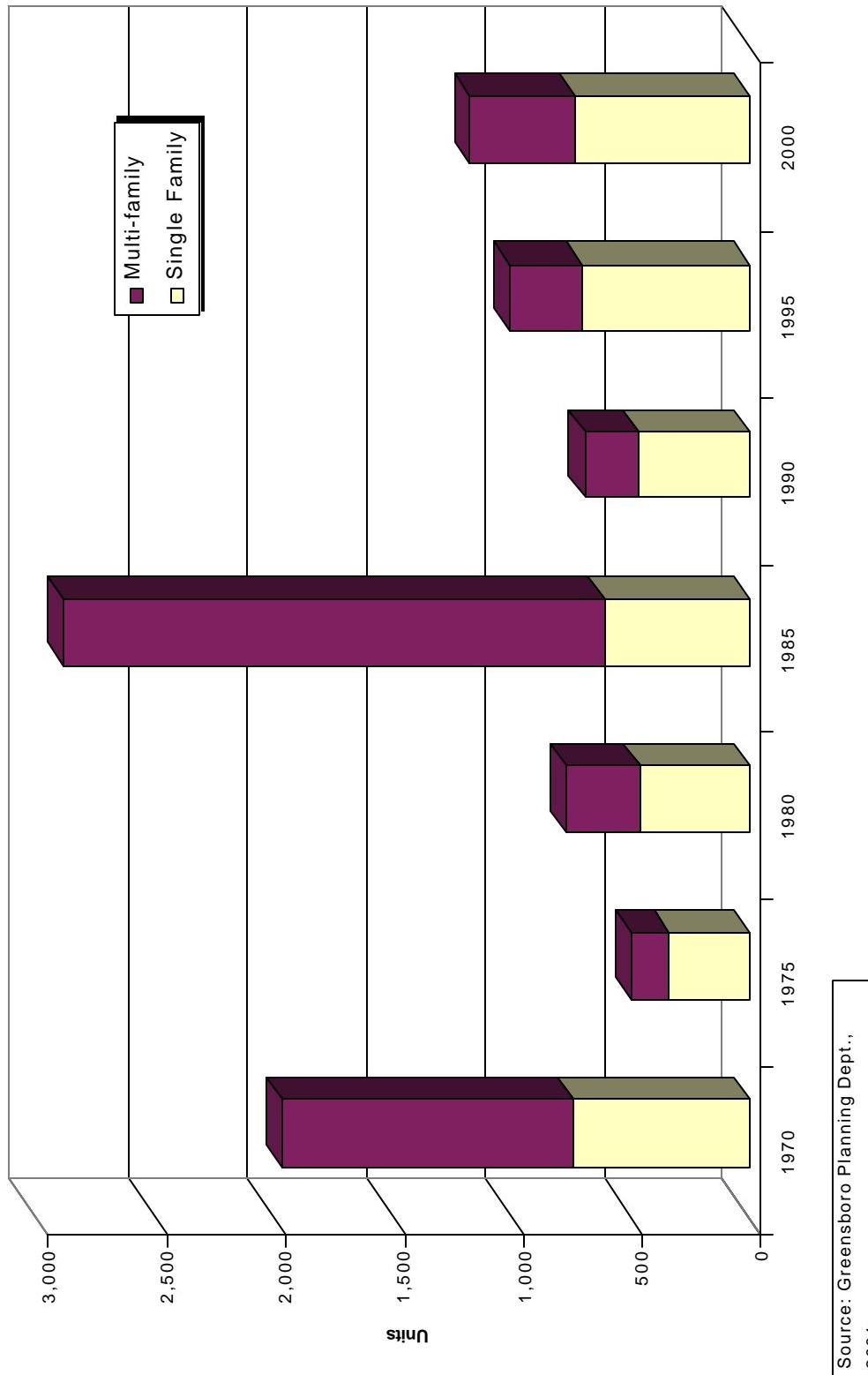


Table 6-11: Housing Opportunity Index for Selected Comparison MSAs by Affordability Rank, 2000

Metro Area	HOI 2000 Q4 Share of Homes Affordable for Me- dian Income*	2000 Median Family Income (000s)	2000 Q4 Median Sales Price (000s)	2000 Q4 Afforda- bility Rank Na- tional	Rank in South Region**
Charlotte-Gastonia-Rock Hill, NC-SC	65.7%	57.1	147	101	47
Greensboro-Winston-Salem-High Point, NC	72.6%	51.0	122	65	27
Raleigh-Durham-Chapel Hill, NC	62.6%	62.8	166	112	51

Source: National Association of Home Builders, Housing Opportunity Index: Fourth Quarter 2000. *Share of Homes Affordable for Median Income = the percentage of homes sold which were affordable to households earning the area's median family income. **The South Region is composed of 61 MSAs, including all or portions of the following states: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Indiana, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia & West Virginia.

Table 6-12: Greensboro Publicly Subsidized and Assisted Housing, 2000

Year	Bedrooms					Total	Vacant	Vacancy Rate
	1	2	3	4	5			
Public Housing	665	799	648	299	74	2,485	0	0.00%
Homeless Facilities	NA	NA	NA	NA	NA	224 beds	NA	NA

Source: Greensboro Consolidated Plan for Housing & Community Development Programs. 2000.

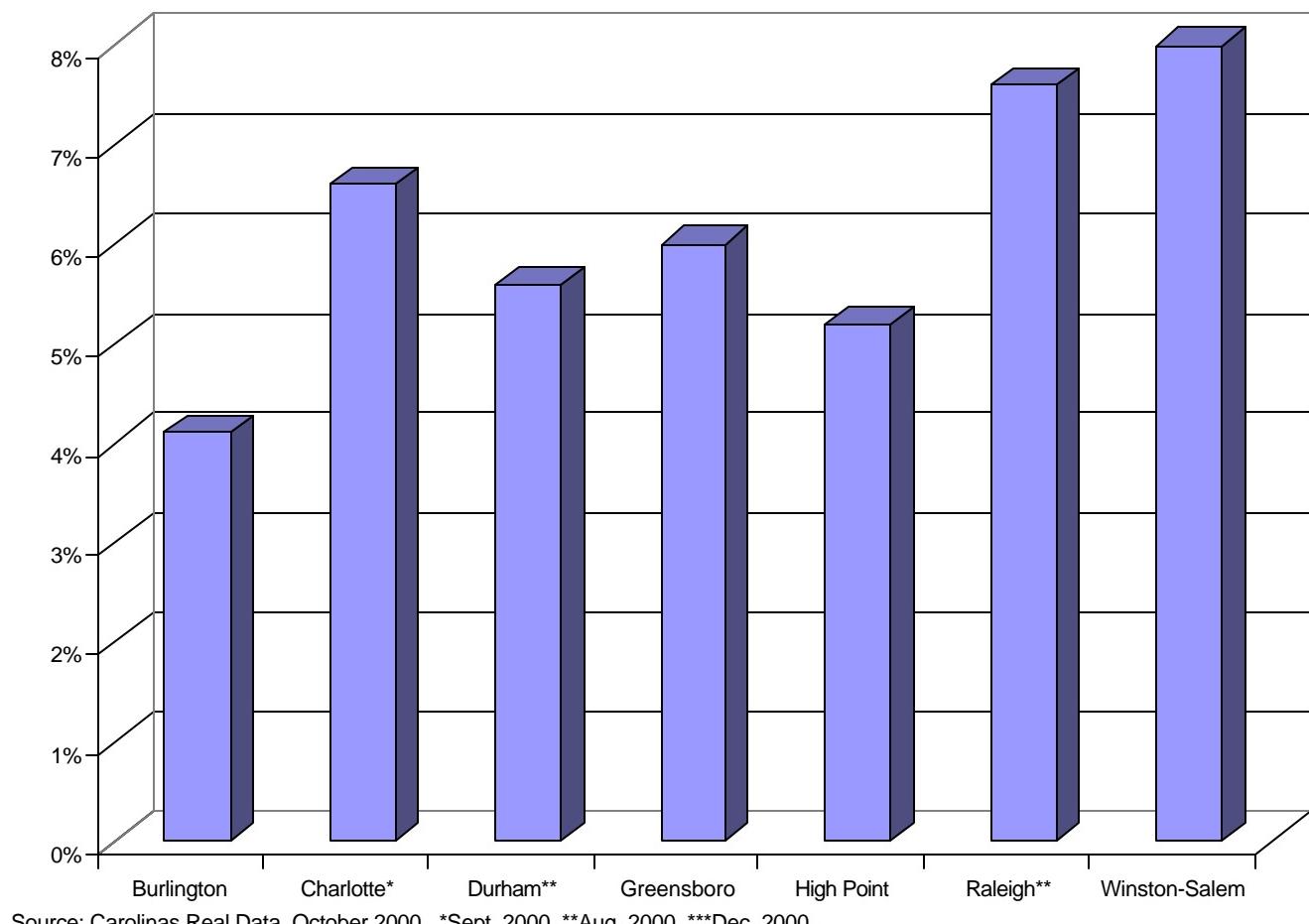
Table 6-13: Greensboro Apartment Rental Rates 1998-2000					
Year*	Average for				Market Totals**
	1 Bedroom	2 Bedrooms	3 Bedrooms	Vacancy Rate	
1998	\$519	\$598	\$750	5.1%	\$584
1999	\$531	\$609	\$773	6.8%	\$597
2000	\$544	\$625	\$786	6.0%	\$612

Source: Carolinas Real Data, 2000. *October of each year. **Average for total number of rental units.

Table 6-14: Triad Regional Average Apartment Rental and Vacancy Rates, 2000						
NC Municipalities	Units			Average Price Per Unit		
	Total	Number Vacant	Percent Vacant	One Bedroom	Two Bedroom	Three Bedroom
Burlington	2,489	101	4.1%	\$553	\$631	\$743
Charlotte*	65,581	4,328	6.6%	\$624	\$733	\$904
Durham**	18,583	1,043	5.6%	\$634	\$734	\$880
Greensboro	22,996	1,382	6.0%	\$544	\$625	\$786
High Point	3,488	181	5.2%	\$503	\$570	\$656
Raleigh**	47,068	3,574	7.6%	\$648	\$761	\$945
Winston-Salem	13,283	1,186	8.0%	\$499	\$590	\$721
Average	44,255	2,978	6.7%	\$525	\$606	\$750
Out-of-State Municipalities						
Greenville, SC***	27,471	2,221	8.1%	\$502	\$582	\$695
Knoxville, TN	N/A	N/A	N/A	N/A	N/A	N/A
Montgomery, AL	N/A	N/A	N/A	N/A	N/A	N/A

Source: Carolinas Real Data, October 2000. *Sept. 2000, **Aug. 2000, ***Dec. 2000.

Figure 6-10: Triad Regional Average Apartment Vacancy Rates, 2000



Source: Carolinas Real Data, October 2000. *Sept. 2000, **Aug. 2000, ***Dec. 2000.

Table 6-16: Guilford County Office Space, 1996-2000

	1996	1997	1998	1999	2000
Rentable Square Feet	7,450,153	7,766,409	8,222,447	8,695,018	9,196,491
Vacant Square Feet	970,754	921,208	997,912	1,365,856	1,466,846
Net Absorption	61,297	131,261	104,858	79,404	105,991
Percent Vacant	13.03%	11.86%	12.14%	15.71%	15.95%

Source: Carter ONCOR, Piedmont Triad Market Review, 2nd quarter 2000.

Table 6-17: Vacant Office Space in Guilford County, 1996-2000

	1996	1997	1998	1999	2000
	Vacant Square Ft	Vacancy Rate	Vacant Square Ft	Vacancy Rate	Vacant Square Ft
Greensboro CBD	469,794	21.47%	425,938	19.74%	428,417
Greensboro Northeast	11,120	21.06%	5,920	11.21%	3,016
Greensboro Northwest	184,974	8.66%	173,722	7.04%	117,876
Greensboro Southeast	600	2.12%	600	2.12%	1,685
Greensboro Southwest	268,214	17.34%	242,936	15.57%	245,439
High Point	26,700	8.17%	27,500	8.37%	58,718
Piedmont Triad Airport	9,352	0.80%	44,592	3.81%	142,761
Totals*:	970,754	13.03%	921,208	11.86%	997,912
					12.14%
					1,365,856
					15.71%
					1,466,846

Source: Carter ONCOR, Piedmont Triad Market Review, 2nd quarter 2000. *Excludes County & unincorporated areas.

Table 6-18: Guilford County Industrial Space, 1996-2000						
	1996	1997	1998	1999	2000	
Rentable Square Feet	17,248,007	16,855,025	16,483,140	16,762,123	17,495,466	
Vacant Square Feet	3,743,617	4,133,924	2,927,829	2,670,492	2,572,684	
Net Absorption	163,420	-95,290	51,628	621,385	441,973	
Percent Vacant	21.70%	24.53%	17.76%	15.93%	14.70%	

Source: Carter ONCOR, Piedmont Triad Market Review, 2nd quarter 2000.

Table 6-19: Vacant Industrial Space* in Guilford County, 1996-2000						
	1996	1997	1998	1999	2000	
	Vacant Square Ft	Vacancy Rate	Vacant Square Ft	Vacancy Rate	Vacant Square Ft	Vacancy Rate
Greensboro Northeast	2,949,055	50.12%	3,109,055	57.40%	1,877,936	42.92%
Greensboro Northwest	11,863	4.64%	12,960	7.95%	0	0.00%
Greensboro Southeast	96,900	7.83%	92,700	7.64%	250,225	18.33%
Greensboro Southwest	142,107	7.39%	185,089	10.13%	245,410	12.16%
High Point	323,438	10.86%	347,924	13.48%	401,754	12.77%
Piedmont Triad Airport	220,254	4.43%	386,196	6.83%	152,504	2.73%
Totals**:	3,743,617	21.70%	4,133,924	24.53%	2,927,829	17.76%

Source: Carter ONCOR, Piedmont Triad Market Review, 2nd quarter 2000. *Only spaces larger than 10,000 square feet are tracked. **Excludes County & unincorporated areas.

Chapter 7

Natural Environment

NATURAL ENVIRONMENT: INTRODUCTION

Greensboro's limited surface waters are a system of small streams and lakes. Geographically, Greensboro is located at the headwaters (or "top of the hill", with most water flowing from the City toward nearby rivers) of the Cape Fear River Basin, the largest of the 17 major river basins in North Carolina. The lakes, ponds and streams in Greensboro are formed from rainfall that runs off of streets and rooftops, and from water that seeps up from local springs. This water ultimately ends up in the Atlantic Ocean, just south of Wilmington, NC. That same water passes through a number of towns and communities along its journey to the sea and picks up various pollutants from the continually changing landscape along the way. Water that starts here in an urban piedmont landscape passes by numerous farms, factories, highways, shopping centers, neighborhoods, and wastewater treatment plants (WWTPs) on its way to the coast. The characteristics of the water (both quality and quantity), which starts in Greensboro, are ultimately transformed along the way due to those changing conditions.

In addition to water quality characteristics, this chapter also includes watershed classifications and descriptions, air quality (depicted in data measuring ozone emissions), and endangered and threatened species, which are classified according to state and federal regulations.

NATURAL ENVIRONMENT: SUMMARY HIGHLIGHTS

Stream Quality

Samples taken from some of Greensboro's local streams between July 1999 and July 2000 indicated that the water quality is typical of urban areas. Measurements were completed at selected sites in the North Buffalo, South Buffalo, and water supply watersheds.

These measurements revealed exceedances in the state standards for fecal coliform in all areas, and for high turbidity at one site in the South Buffalo Watershed. Fecal coliform bacteria are caused by animal waste runoff, septic systems, sewer overflows, and point discharges of water from wastewater treatment plants. Turbidity is a measure of water clarity and may be caused by a variety of suspended materials in the stream system.

Biological Indicators

From 1997 through 2000, the diversity and health of the aquatic insect community was fair to good-fair in the urban streams and good-fair in the City's watershed streams. For the years 1994, 1998, and 1999, the diversity of fish in Greensboro's urban streams was poor and the watershed streams were rated fair to good-fair.

Favorable habitat conditions do not exist in several of Greensboro's streams to support fish and other aquatic communities. However, this does not indicate poor water quality on its own, but rather the result of intense urbanization that is typical of many North Carolina cities.

Lake Water Quality

The Water Quality Index score, which is a combination of nine parameters, was predominantly above average from May 1999 to November 2000 in the City's three water supply lakes.

Water Supply/ Watershed

The eight state designated water supply watersheds located within Guilford County are regulated by state mandates and are based upon the existing development pattern within the drainage area of the intake or reservoir. Minimum state standards contain different requirements for low and high-density developments that may require the construction of a water quality device, such as a pond or a bioretention area.

Air Quality

Ground level ozone, a colorless, odorless gas, is the pollutant that is most likely to lower air quality in North Carolina. In 1999 and 2000, North Carolina was one of the top ten states in the country (ranking third, only behind California and Texas) in emissions of ground level ozone.

Exceedances in the Triad region from 1997-1999, which indicate the number of occurrences above the state standard, reveal that the highest numbers (18) were recorded in Guilford County in 1998 and 1999, and in 1998 in Forsyth County.

Ozone measurements are taken between April and October every year. From 1998 through 2000, the month with the highest number of exceedances in the Triad region was August, generally the hottest month of the year. In 2000, the region listed more than 30 "code orange" ozone days.

Endangered and Threatened Species

Endangered, Threatened, and Species of Concern have been classified under state and federal guidelines. In 2000, Randolph County had the most state designated species and habitats (38), followed by Rockingham and Forsyth Counties with 33 and 29, respectively. Guilford County had 21, perhaps due to the urbanization of the area. Alamance, the smallest county in the Triad region, had the lowest number, at 17.

ENVIRONMENTAL QUALITY

Local Surface Waters

Locally, the condition of Greensboro's three primary drinking water lakes is largely a result of the quality and quantity of the streams that flow into those lakes. Likewise, the condition of the water in local streams is related to land use and the quality and quantity of the rainfall washing off the landscape. In an urban setting like Greensboro, the predominant factors in determining the water quality characteristics of streams and lakes are the pollutants washing off Greensboro's urban landscape. This type of pollution is called "non-point source pollution", because it comes from everywhere – homes, yards, cars, roads, office buildings, etc. – rather than from just one identifiable source. Every time it rains, local streams and lakes are subject to "non-point" source pollution. An example of "point" source pollution is a factory or a Wastewater Treatment Plant (WWTP) where treated wastewater is directly discharged into the creek or river. In a rural or non-urban setting, rainfall has a greater chance to soak into the ground, pass slowly overland, or absorb into wetlands, all of which improve water quality through physical and biological processes. On the other hand, in Greensboro and other urban areas, rainfall does not have as much opportunity to soak into the ground due to the urbanized landscape (buildings, parking lots, etc.), and quickly washes off into local lakes and streams – carrying with it pollution and/or trash. For these reasons, it is important to compare the water quality of the streams and lakes in Greensboro to those of other similar urban settings.

Characterizing water quality can be very complicated. No one measurement can truly characterize the relative "quality" of a water body. In fact, Greensboro conducts dozens of water quality tests at many sites throughout the City. Tests include measurements like the temperature of the water, the amount of oxygen in the water, or the level of bacteria in the water. Other, more complicated tests include Biochemical Oxygen Demand (BOD), a measurement of the oxygen-demanding materials in the water body. BOD is usually an indication of water pollution if found at high levels. Some tests, such as Chlorophyll a, are an indirect estimate of the amount of algae growing in a water body. High levels of Chlorophyll a can indicate elevated levels of nutrients like Nitrogen and Phosphorus.

Greensboro recently began regular monitoring of fish and benthic macroinvertebrate communities ("aquatic insects") as an indicator of water quality, consistent with the methods used by the State of North Carolina. This recognizes a trend in the water quality field where the overall biological community is used as a gauge of environmental health in addition to the multitude of specific chemical tests in determining overall stream health.

To show general trends in the water quality of local streams and lakes, Greensboro is now using a nationally accepted water quality index (WQI) to generate relative numeric scores and descriptions, which broadly characterize the water quality in local lakes and streams. Indices to characterize the fish and aquatic insect communities have been developed at the State level and are being utilized in Greensboro to show comparable trends in the biological health of local streams. These indices use scientific formulas to account for the most important measures of water quality and biological conditions, and to describe those conditions in a more understandable format. Although these indices are an acceptable means of compar-

ing conditions of overall surface water quality, they do not indicate acceptability as a source of water supply, nor do they indicate whether a stream meets surface water quality goals as established by state or federal regulators. These indices are utilized as a public education tool to convey water quality conditions to the general public, local elected officials and managers, and other community stakeholders.

One of the most difficult issues in establishing the relative “quality” of a stream or lake is the variability of the data being collected. Seasonal fluctuations, geographic location, and local sampling conditions can contribute to variations in collected data. For example, Chlorophyll a, an indicator of undesirable algae growth, is typically seen at low levels during the winter and is expected to rise during the summer months, even in a “pristine” Piedmont lake. Chlorophyll a is usually found at higher levels in shallow coves than in the larger, deeper body of a lake. This is due to the warmer temperatures typical of shallower water, thus causing the algae to grow more rapidly. Scientists and local staff can only gather this data during limited time periods and in limited locations, thus contributing to the variability of the data collected. In addition, stream quality can be highly variable based on the quantity of water within the stream. Following the “first flush” of urban runoff from a heavy rain, streams can show a higher concentration of pollutants than were present prior to or shortly after the rain (due to dilution). All of this indicates that water quality is a complex issue that requires consideration of many factors when assessing the overall “health” and “quality” of an aquatic environment. Given these complexities in dealing with water quality, the following information is offered about Greensboro’s aquatic environment.

Stream Water Quality – Why Are Greensboro’s Stream Banks Changing?

The City of Greensboro’s Stormwater Management Division implements various programs to address water pollution and improve the quality of the City’s streams. In addition, the need to comply with increasingly more stringent water quality regulations suggests that all of Greensboro’s limited water resources must be protected. Comprehensive watershed management not only includes the treatment of pollutants, but the prevention of those pollutants as well. The implementation of vegetated stream buffers along the City’s streams is one important step toward stopping those pollutants from entering streams.

One of the first steps necessary to protect limited water resources is to enhance or restore a stream’s capacity to function as a natural, ecological system. One established method of improving a stream’s natural function is to create a vegetated buffer system along the stream channel. Stream buffers filter pollutants, shade and cool the water, provide channel stability, and provide storage for floodwaters. Stream buffers allow for the development of natural stream meanders, increase the diversity of aquatic life, provide areas for recreational opportunities, filter air and noise pollution, enhance wildlife habitat, etc. For Greensboro to follow the stream buffer restoration method requires a major change in previous practices. Prior to 1999, Parks and Recreation staff were mowing many of Greensboro’s stream corridors on public property on a periodic basis to give the appearance of a manicured, park-like setting. Although the manicured look may be aesthetically pleasing to certain residents, this practice is detrimental to water quality and the ecosystem of the streams.

The need for urban stream restoration efforts has been expressed across the nation, in vari-

ous communities, for various reasons. As Greensboro continues to grow, the quality of its water has become increasingly important and more difficult to maintain. Growth necessitates increased watershed protection to provide clean drinking water, and improved water quality for the supply of industrial, commercial, and residential needs. Also present is the need to ensure that the environment in which residents live is sustainable for future generations. A strategic approach to comprehensive watershed management should include a master planning effort, strategic best management practices (BMPs) designed to reduce pollutants, the creation of vegetated buffers along streams, public education, and source reduction of pollution through identification and elimination. These systems are now in place in various stages in the City of Greensboro.

The Stormwater Management Division is developing the programs to predict and measure the benefits and successes of both a master planning effort and the creation of stream buffers. The watershed computer model will track changes in the watershed and predict how proposed management practices affect both the water quality and water quantity of surrounding areas. Comprehensive monitoring of streams will track improvements and/or deterioration in water quality and aquatic life. Public education efforts have been and will continue to be a crucial part of changing the way people regard the precious water resources in Greensboro. Creating vegetated stream buffers is just one vital step toward providing a sustainable environment, which then sustains the economy, which in turn provides a higher quality of life.

Water quality data from local streams during 1999 and 2000 indicated water quality in Greensboro's streams was typical of urban areas. Greensboro's most prolific pollutant was Fecal Coliform bacteria, which indicates bacterial contamination from warm-blooded animals, uncontrolled sewage, farm operations, and urban runoff. Fecal Coliform was consistently elevated and exceeded State and City standards throughout the time period, although this is typical of urbanized areas. BOD, an indicator of organic pollution typically associated with sewage, industrial, and animal-farming wastes, was well within normal ranges except for downstream of the North Buffalo Water Reclamation Facility (a WWTP), where levels were only slightly elevated. Nutrients such as Nitrogen and Phosphorus were at acceptable levels with the exception of downstream of the North Buffalo Facility. The nutrient contribution from the WWTP is currently within permit limits set by the State, but this level may be reduced as a result of current regulatory actions. Results from 1999-2000 water quality tests during dry weather (ambient) conditions are in Tables 7-1, 7-2, and 7-3, followed by a summary graph (Figure 7-1) of current Water Quality Index (WQI) results.

Table 7-1: North Buffalo Watershed, Average Ambient Instream Results: July 1999-July 2000

Water Quality Measurements	Sites					Standards		
	Aycock	Church	Rankin Mill	16th St.	White St.	NC DWQ Standard	City Action Level	Units
Alkalinity	53.5	61.8	59.3	55.1	73.6	none	>100	mg/l
BOD	2.4667	2.767	4.6	2.367	2.21667	none	>10	mg/l
COD	20.4	20.8	34	23.8	20	none	>30	mg/l
Fecal Coliform	3914	3436	2526	1350	1272	200	>3000	CFU/100
Hardness	65.1	72.5	63.4	60.5	97	none	>120	mg/l
Nitrate Nitrogen	0.3117	0.282	7.365	0.31	0.51833	none	>5.0	mg/l
Nitrite Nitrogen	0.1	0.1	0.13	0.1	0.11	none	>1.0	mg/l
TDS	109	135.3	295.2	117.3	180.3	none	>400	mg/l
TSS	5.5	4.2	11.2	10.7	2	none	>65	mg/l
TKN	0.7667	0.65	2.4333	0.683	0.65	none	>2.5	mg/l
T. Phosphorus	0.0733	0.07	0.8967	0.045	0.06833	none	>0.6	mg/l
Cadmium	0.0002	0.00008	0.0003	0.00002	0.0002	2	>2	mg/l
Copper	0.0033	0.004	0.0055	0.005	0.00467	7	>7	mg/l
Lead	0.0008	0.001	0.0013	0.003	0.00133	25	>6	mg/l
Zinc	0.0073	0.008	0.0598	0.02	0.016	50	>35	mg/l
PH	6.84	6.95	6.56	6.73	7.01	<6->9	<6 or >9	su
Temperature	16.63	16.71	17.25	15.55	15.44	none	>30	o C
DO	7.93	7.15	5.97	6.64	9.05	<5.0	<5	mg/l
Turbidity	16.97	12.61	20.94	31.61	18.38	50	>50	NTU
Conductivity	210.86	235	473.29	184.7	316	500	>500	umho/cm

Source: Greensboro Water Resources Dept., 2000.

Red = exceedance of State standard

Blue = exceedance of City standard

Table 7-2: South Buffalo Watershed, Average Ambient Instream Results: July 1999-July 2000

Water Quality Measurements	Sites					Standards		
	Merritt	Randleman	McConnell	W. JJ Dr.	Fieldcrest	NC DWQ Standard	City Action Level	Units
Alkalinity	62.1	64.5	64.7	69.8	82.6	none	>100	mg/l
BOD	2.4	2.9333	2	2	2.2833	none	>10	mg/l
COD	21.2	23.4	20.8	22.8	20.7	none	>30	mg/l
Fecal Coliform	2404	1215	1704	1250	6715	200	>3000	CFU/100
Hardness	69.6	73.3	88.3	70.7	140	none	>120	mg/l
Nitrate Nitrogen	0.34	0.3667	0.36	0.25	0.315	none	>5.0	mg/l
Nitrite Nitrogen	0.1	0.1	0.1	0.19	0.1	none	>1.0	mg/l
TDS	136.7	143.5	156.7	122.2	248.7	none	>400	mg/l
TSS	25.3	5.5	3.7	4	11	none	>65	mg/l
TKN	0.667	0.6333	0.6	0.68	0.583333	none	>2.5	mg/l
T. Phosphorus	0.072	0.0483	0.03833	0.05	0.1	none	>0.6	mg/l
Cadmium	0.00009	0.00008	0.00007	0	0.0001	2	>2	mg/l
Copper	0.005	0.0032	0.00333	0	0.00333	7	>7	mg/l
Lead	0.003	0.001	0.0007	0	0.001133	25	>6	mg/l
Zinc	0.016	0.0082	0.0083	0.01	0.0121	50	>35	mg/l
PH	6.87	7.01	7.28	7.68	7.25	<6->9	<6 or >9	su
Temperature	16.22	16.92	18.14	20.5	17.9	none	>30	o C
DO	7.61	8.21	8.98	12.3	9.37	<5.0	<5	mg/l
Turbidity	81.19	24.05	15.08	15.3	18.03	50	>50	NTU
Conductivity	206	224.43	291.86	198	347.64	500	>500	umho/cm

Source: Greensboro Water Resources Dept., 2000.

Red = exceedance of State standard

Blue = exceedance of City standard

Table 7-3: Water Supply Watershed, Average Ambient Instream Results: July 1999-July 2000

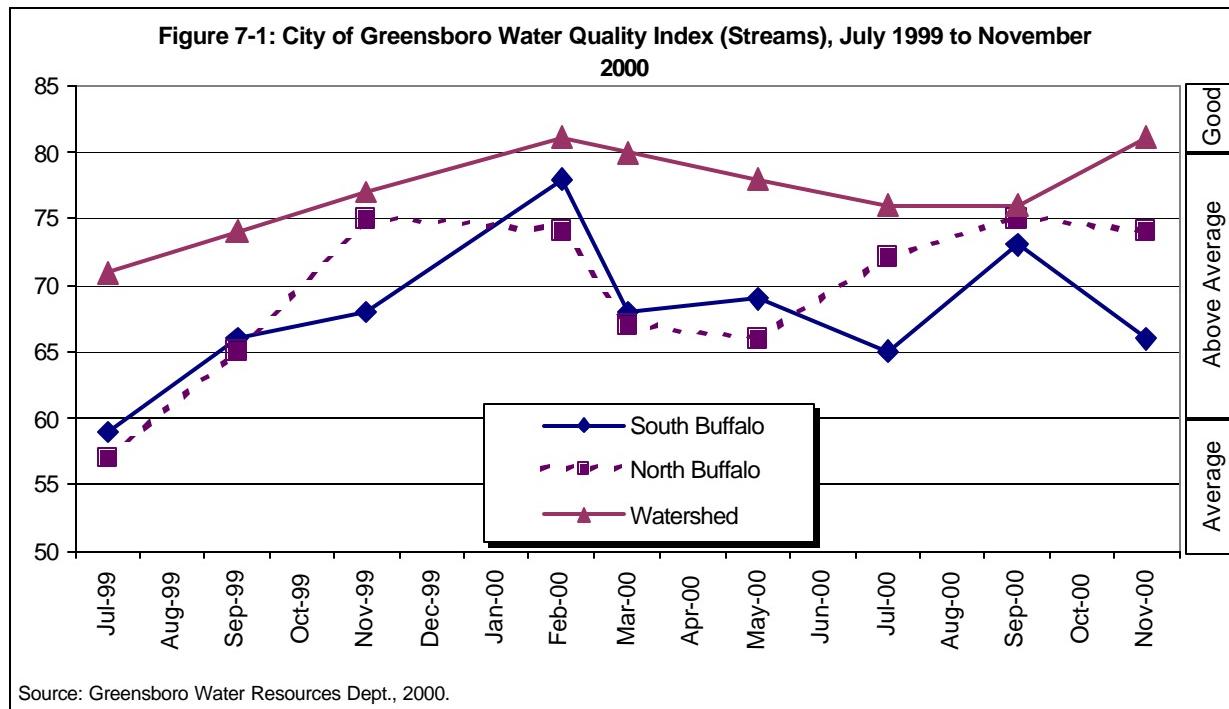
Water Quality Measurements	Sites						Standards				
	Pleasant Ridge	Friendship Church	Oak Ridge	Battleground	Bluff Run	Flemming Ridge	Kivett	Mackay	NC DW/Q Standard	City Action Level	Units
Alkalinity	36.7	51.7	65.3	52.2	48.7	41.7	64.5	65	none	>100	mg/l
BOD	2.367	2	3	2	2.8167	3.15	2.22	2.767	none	>10	mg/l
COD	20	20	23.5	20	20	20	20.4	20	none	>30	mg/l
Fecal Coliform	178	805	431	1183	1553	1090	200	142	200	>3000	CFU/100
Hardness	31.3	39.9	70.7	52.1	44.4	36.4	90.1	54.6	none	>120	mg/l
Nitrate Nitrogen	0.24	0.2	0.3983	0.37	0.2033	0.32	0.26	0.247	none	>5.0	mg/l
Nitrite Nitrogen	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.42	>1.0	mg/l
TDS	60.7	76.7	97.8	100.3	71.3	67	113	94.8	none	>400	mg/l
TSS	9.4	3.3	3.4	7.8	5	5.7	3.8	13.1	none	>65	mg/l
TKN	0.583	0.57	0.55	0.6667	0.6167	0.55	0.57	0.633	none	>2.5	mg/l
T. Phosphorus	0.032	0.02	0.0917	0.0883	0.0367	0.05	0.05	0.043	none	>0.6	mg/l
Cadmium	0.00011	0	0.0003	0.000055	0.000055	0	0	0.00004	2	>2	mg/l
Copper	0.002	0	0.0038	0.0023	0.0022	0	0	0.002	7	>7	mg/l
Lead	0.00004	0	0.0005	0.0004	0.0004	0	0	0.00005	25	>6	mg/l
Zinc	0.006	0.01	0.0077	0.005	0.0083	0.01	0.01	0.005	50	>35	mg/l
PH	7.17	6.75	7.05	6.98	6.81	6.9	6.94	6.97	<6 or >9	su	
Temperature	13.18	14.6	14.04	14.96	14.49	15.8	15.5	16.08	none	>30	o C
DO	8.2	7.57	7.85	7.89	7.85	9.01	7.94	8.53	<5.0	<5	mg/l
Turbidity	19.88	9.64	8.16	16.57	8.48	22.4	8.85	9.53	50	>50	NTU
Conductivity	93.29	98	182.43	147.43	114.29	105	207	160.6	500	>500	umho/cm

Source: Greensboro Water Resources Dept., 2000.

Red = exceedance of State standard

Blue = exceedance of City standard

Summary graph of current Water Quality Index (WQI) scores:



The Water Quality Index (WQI) is the combination of nine (9) parameters combined into a common index value.

In general, the measured water quality in streams within the water supply watershed is better than that of the non-water supply watersheds, including North and South Buffalo creeks. This is largely a result of extensive water quality protection measures established for the water supply watershed and the dense urbanization of areas such as the North and South Buffalo Creek basins. The poor water quality in areas outside the water supply watershed is an indication of what can happen to water quality when uncontrolled development occurs. Greensboro should be vigilant in its development around the water supply lakes while looking for optimal ways to protect and restore water quality in other areas of the City.

BIOLOGICAL QUALITY

Aquatic Insects (Macroinvertebrates)

Biological sampling was conducted in 1997, 1999, and 2000, to determine the diversity and health of aquatic insect populations in Greensboro's streams. Table 7-4 summarizes the aquatic insect community sampling results. Although City data indicate that the diversity and health of aquatic insect populations in Greensboro's streams are fair to good-fair in the urban streams and good-fair in many of the City's watershed streams, these results are typical of developing urban communities.

Table 7-4: Greensboro Average Aquatic Insect Community NCBI* Scores, 1997-2000					
Area	1997		1999		2000
South Buffalo Creek	6.2	Good-Fair	6.93	Fair	7.13 Fair
North Buffalo Creek	6.41	Good-Fair	6.98	Fair	n/a n/a
Watershed Creeks	5.77	Good	5.77	Good	n/a n/a

Source: Greensboro Water Resources Dept., 2000. * NCBI = North Carolina Biotic Index

Note: Bioclassification criteria for North Carolina Biotic Index for the North Carolina Piedmont (NCDEHNR 1995).

Table 7-5: NC Biotic Index, 1995	
Bioclassification	Biotic Index Value
Excellent	< 5.19
Good	5.19 - 5.78
Good – Fair	5.79 - 6.48
Fair	6.49 - 7.49
Poor	> 7.48

Source: NCDEHNR. 1995. Basinwide assessment report support document Cape Fear River Basin, DEM.

Fish

Sampling of the diversity and health of fish populations in Greensboro's streams was conducted during 1999. Very little historical fish community data is available, although the State Division of Water Quality has some limited sampling data from 1994 and 1998. The data indicate that the diversity of fish and aquatic insects in Greensboro's urban streams is poor and streams in the watershed area are considered fair to good-fair. Again, these results are typical of developing urban communities.

Table 7-6: Greensboro Average Fish Community NCIBI* Scores, 1994-1999			
Area	1994	1998	1999
South Buffalo Creek	27 Poor	20 Poor	24 Poor
North Buffalo Creek	22 Poor	30 Poor	31 Poor
Watershed Creeks	42 Fair	44 Good-Fair	37 Fair

Source: 1994 & 1998 data = NC Div. of Water Quality; 1999 data = Greensboro Water Resources Dept. * NCIBI = North Carolina Index of Biotic Integrity

Notes: NCIBI scores and class characteristics.

Table 7-7: NC Index of Biotic Integrity, 1999		
NCIBI Scores	Integrity Classes	Class Characteristics
56-60	Excellent	Good species diversity for the stream size. Species unable to live in a polluted environment are present. The food chain in the stream is well balanced for all inhabitants & species of different age groups were found.
50-54	Good	Species diversity a little below what is expected for the stream. Most species unable to live in pollution are not present & the food chain structure is showing signs of stress.
44-48	Good-Fair	Continued signs of deterioration in the stream's fish community. There is a decline in species diversity & an unbalanced food chain structure.
38-42	Fair	Diseased fish are sometimes present. The fish community is dominated by species able to live in polluted areas.
<36	Poor	Very few fish were found & species diversity is very low. The majority of the population is introduced (exotic/ non-native) species & those species able to live in pollution.

Source: Stream Fish Community Structure Assessment. Biological Assessment Group, Div. of Water Quality, NC Dept. of Environment & Natural Resources (NCDENR), 1999.

Habitat

In many of Greensboro's streams, habitat conditions favorable for supporting healthy aquatic communities are not common due to the long -term impacts of urbanization. Poor habitat conditions consist of impacts from past stream channelization (straightening) and the loss of riffles, pools, and stream bank shade trees usually necessary for healthy fish populations. The loss of potential food sources and shelter due to the frequent flushing of local streams during heavy rain events adds to poor habitat conditions. By standard criteria, the biological scores indicate poor diversity within the fish and insect populations. The only numbers indicating fair conditions were in the upper reach of North Buffalo Creek and the water supply watershed creeks (with the exception of the Horsepen Creek sample). Again, this data does not necessarily indicate poor water quality on its own, but the combination of impacts that an urbanized community can have on its local waterways.

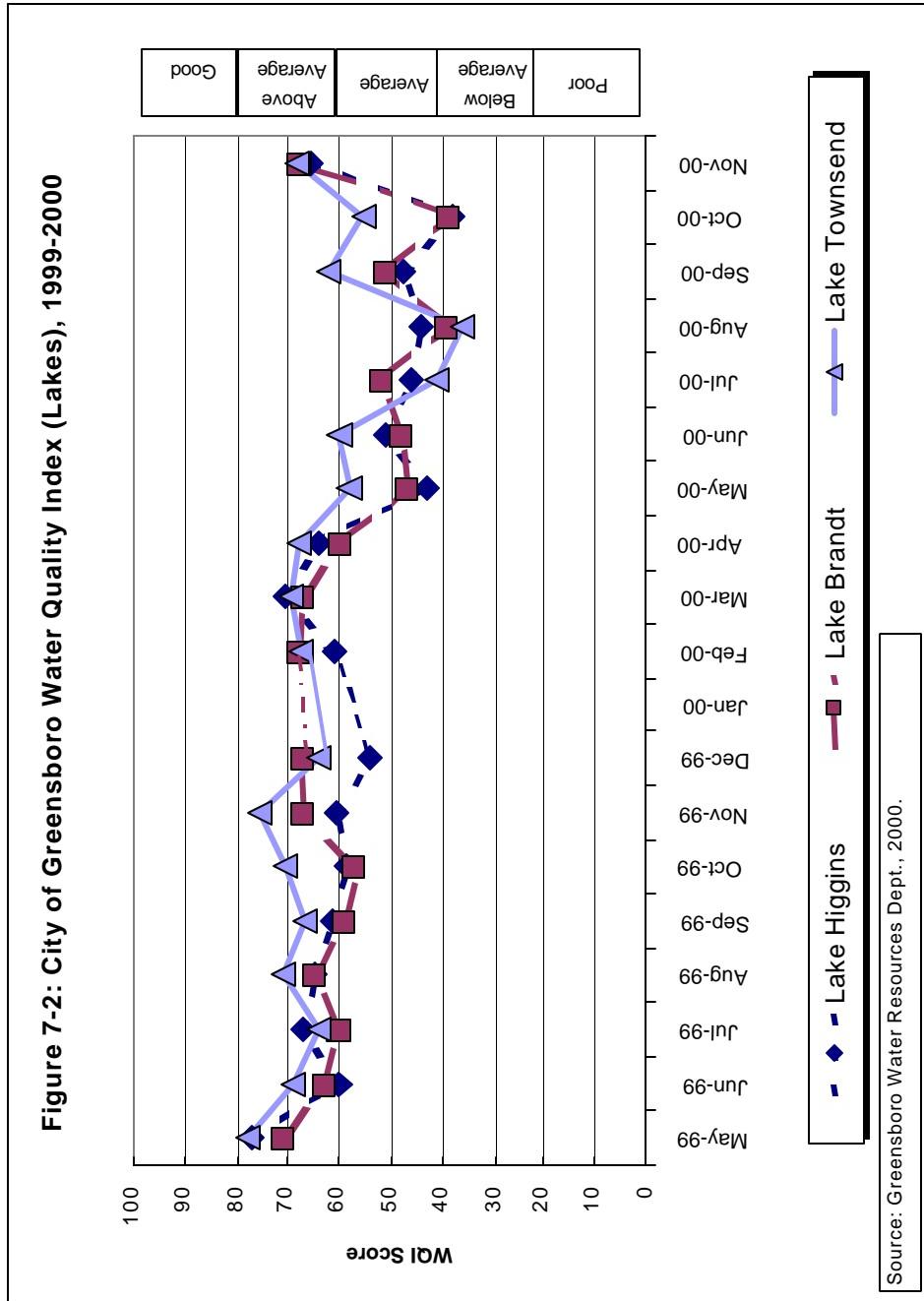
LAKE WATER QUALITY

The limited data generated for Greensboro's three water supply lakes indicate that water quality is typical for lakes located in the Piedmont area of North Carolina. The one parameter of concern is that of Chlorophyll a, again, indicative of elevated levels of nutrients like Nitrate and Phosphorus. Data collection for Chlorophyll a was only routinely begun in 1999 and the laboratory analysis during that year has been found to be of questionable value. In calendar year 2000, the data indicates an expected seasonal increase of Chlorophyll a during the summer months, most notably in the shallower areas of the lakes. When the data was averaged, it showed amounts of Chlorophyll a for all three lakes as below average to average (40 micrograms per liter, (mg/l)), but Lake Higgins showed an average amount in October 2000 (46 mg/l) and Lake Townsend showed an average amount in July (43 mg/l) and in August (53 mg/l) 2000.

It is essential to note that for all the parameters measured for the water supply lakes, only Chlorophyll a (algae) has been shown to seasonally exceed surface water standards. There is great debate about the use of the 40 mg/l Chlorophyll a standard for surface waters in regions like the Piedmont where natural nutrient levels and summertime light and temperatures combine to produce natural algae levels of this quantity.

Figure 7-2 shows a summary of the Water Quality Index (WQI) for Greensboro's three primary drinking water lakes. It is important to note that the seasonal variation seen during the summer of 2000 was a result of some higher than average Chlorophyll a values which resulted in a lower than normal WQI score for that time period. At no time was the quality of the drinking water unsuitable for human consumption. Regardless, it is essential that Greensboro recognize the sensitivity of its limited drinking water source and seek to continue to protect the watershed from unacceptable development, as mandated by North Carolina rule.

Figure 7-2: City of Greensboro Water Quality Index (Lakes), 1999-2000



The Water Quality Index (WQI) is the combination of nine (9) parameters combined into a common index value.

STATE DESIGNATED WATER SUPPLY: WATERSHEDS AND CRITICAL AREAS

As a result of a series of state mandates, cities and counties within North Carolina have adopted ordinances with regulations that place additional restrictions on development that occurs within the drainage area for all state designated water supply watersheds. All watershed areas are not state designated water supply watersheds. A state designated water supply watershed is the entire area contributing drainage (stormwater flow) to the designated water supply reservoir or intake. These watersheds are the source of our drinking water and by limiting the amount of development, we are reducing the amount of pollutants that enter into them. The minimum state standards to be enforced for each reservoir are based on a state's designation for that water supply watershed. The designation is based on the existing development pattern within the drainage area of the intake or reservoir. The minimum state standards also contain two sets of regulations, one for high-density type developments and one for low-density type developments. The main difference between high- and low-density type developments is that on high-density development sites, a water quality device (e.g. pond, bioretention area) must be constructed to treat the stormwater runoff from the proposed built upon area (BUA), if the proposed project exceeds a certain percentage of BUA. BUA is material placed on the site that does not allow stormwater to infiltrate in to the soil. Examples of BUA are asphalt, concrete and gravel.

The regulations concentrate on the effects of stormwater runoff on the quality of water at the intake or within the reservoir. The condition of the stormwater runoff that flows from a site to the intake or reservoir depends on the quantity of runoff and how quickly the stormwater runoff flows from the site to the intake or reservoir. These factors are directly related to the amount of BUA constructed on the site and the distance the stormwater must travel to get to the intake or reservoir.

There are eight state designated water supply watershed basins located within Guilford County. Those basins are Greensboro (Lake Brandt and Lake Townsend), Polecat Creek, Uwharrie (Lake Reece), Lake Mackintosh, Reidsville, Dan River, Upper Randleman (Oak Hollow Lake, High Point City Lake, and Oakdale Reservoir), and Lower Randleman (the future Randleman Lake). Each one of these watershed basins crosses two or more municipal boundaries. The regulations vary from city to county and watershed to watershed but must contain the minimum state standards. The watersheds located in Guilford County are classified as either WS-III or WS-IV. The regulations associated with WS-III, which are watersheds that contain an existing development pattern that is not as urban as WS-IV, are more restrictive than the WS-IV classification. The Greensboro, Polecat Creek, and Uwharrie basins are classified as WS-III. Lake Mackintosh, Reidsville, and Dan River basins are classified as WS-IV. Although the Randleman Watershed is classified as a WS-IV, the minimum state standards are different and it is divided into two separate districts. The two districts are considered Upper Randleman and Lower Randleman. The upper portion of the Randleman Watershed contains the General Watershed Area and Watershed Critical Area for Oak Hollow Lake and High Point Lake. The lower portion contains the General Watershed Area and Watershed Critical Area for Oakdale reservoir and the future Randleman Lake.

In general, the regulations become more restrictive the closer the development occurs to the

intake or the edge of the water contained in the reservoir. Two overlay districts cover designated water supply watersheds. These districts are the Watershed Critical Area (WCA) and the General Watershed Area (GWA). The WCA covers the area adjacent to a water supply intake or reservoir, where risk associated with pollution is greater than from the remaining portions of the watershed. No portion of the WCA outer boundary is closer than one-half (1/2) mile to the normal pool elevation or intake and draining to an existing or proposed designated reservoir. The WCA is further divided into four tiers, located around the intake or the edge of the water contained in the reservoir. The tiers are numbered from one to four, with Tier One being located closest to the reservoir and the most restrictive for development, and Tier Four being farthest away and least restrictive. The GWA covers the rest of the watershed draining to the reservoir or intake. These overlay districts serve to restrict development, so as to limit the amount of pollution that enters into our reservoirs.

It is interesting to note that the majority of the City is located in the Buffalo Creek watershed (a non-state designated water supply watershed), which drains to the Haw River and is not a part of Greensboro's water supply. Greensboro's water supply comes from three City-owned lakes on the north side of the City. The water drains into the City's lakes from the west. A large portion of the Greensboro water supply watershed is within the town limits of Summerfield.

AIR QUALITY

Ground level ozone, a colorless, odorless gas, is the pollutant that is most likely to lower air quality in North Carolina. Ozone is a problem in many areas across the United States. In 1999 and 2000, North Carolina ranked third in the country (only behind California and Texas), in emissions of ground level ozone. It is a pollutant that is unhealthy and even harmful to breathe (especially for sensitive persons, such as children, the elderly, and those who have asthma), and it can cause damage to plant life.

Air quality is measured on the amount and exposure time to ground level ozone. The EPA has determined that long-term exposure to lower levels of ozone is more harmful to human health than short-term exposure at higher concentrations. The standard of 0.08 parts per million (ppm) averaged over an 8-hour period is the current government limit, or standard, for acceptable exposure without risking human health. Parts per million is a ratio that in this case means the maximum healthy concentration of ground-level ozone is less than 1/10th of one part of ozone for every one million parts of air.

Since 1997, the Triad region has exceeded state ozone standards multiple times. Ozone measurements are taken between April and October every year. In 2000, the Triad listed more than 30 "code orange" ozone days. From 1998 through 2000, the month with the highest number of exceedances in the Triad region was August, generally the hottest month of the year.

Ozone data in this chapter are from measurements conducted at six sites in Forsyth, Guilford, and Rockingham Counties: Hattie Avenue, Pollirosa, Shiloh Church, and Union Cross in Forsyth, McLeansville in Guilford, and Bethany in Rockingham. The measurements were conducted from 1997 to 1999. Exceedances which indicate the number of occurrences

above the state standard reveal that the highest exceedances (18) were recorded in Guilford County in 1998 and 1999 at the McLeansville site and in 1998 at the Union Cross site in Forsyth County. The Hattie site in Forsyth County registered exceedances of 15 and 16 for 1998 and 1999, respectively.

Greensboro and many other cities are required to monitor air quality to meet state standards. Unmanned monitors take multiple air quality measurements per hour. An exceedance occurs when the standard is surpassed.

Table 7-8: Ozone Air Quality Index (AQI) Color Code Table, 2000

Ozone Level	AQI Range	8-hour Ozone Concentration	Related Weather Conditions	Health Effects
Purple (Very Unhealthy)	201-300	0.125-0.374	Cool summer temperatures; windy; significant cloud cover; heavy or steady precipitation	No negative health effects.
Red (Unhealthy)	151-200	0.105-0.124	Temperatures in the upper 70s-lower 80s; light to moderate winds; partly cloudy or mostly sunny skies; chance of rain or afternoon thunderstorms	People unusually sensitive to ozone should limit extended outdoor exertion.
Orange (Unhealthy for Sensitive Groups)	101-150	0.085-0.104	Temperatures in the 80s & 90s; light winds; mostly sunny skies; slight chance of afternoon thunderstorms	Everyone (especially sensitive people, such as those with asthma) should limit extended outdoor exertion.
Yellow (Moderate)	51-100	0.065-0.084	Hot, hazy, & humid; stagnant air; sunny skies; little chance of precipitation	Sensitive people (respiratory diseases such as asthma) should avoid extended outdoor exertion; everyone else (especially children) should restrict extended outdoor exertion.
Green (Good)	0-50	0.000-0.064	Hot & very hazy; extremely stagnant air; sunny skies; no precipitation	All sensitive people should avoid all outdoor activities; everyone else (especially children) should restrict outdoor exertion & avoid heavy outdoor exertion entirely.

Source: Forsyth County Environmental Affairs Department, 2001, and NC Division of Air Quality, NC Ozone Forecast Center, 2001.

Table 7-9: Monthly Ozone Exceedances in the Triad Region by Code,
1998-2000

Year	Month	Number of Days at:		
		Code Orange	Code Red	Code Purple
1998	May	3	0	0
	June	3	0	0
	July	7	0	0
	August	12	0	0
	September	7	2	0
1999	May	3	0	0
	June	3	1	0
	July	7	0	0
	August	12	1	1
	September	2	0	0
2000	May	3	0	0
	June	3	0	0
	July	7	0	0
	August	12	0	0
	September	7	2	0

Source: Forsyth County Environmental Affairs Dept., 2001.

Figure 7-3: Monthly Ozone Exceedances in the Triad Region by Code, 1998-2000

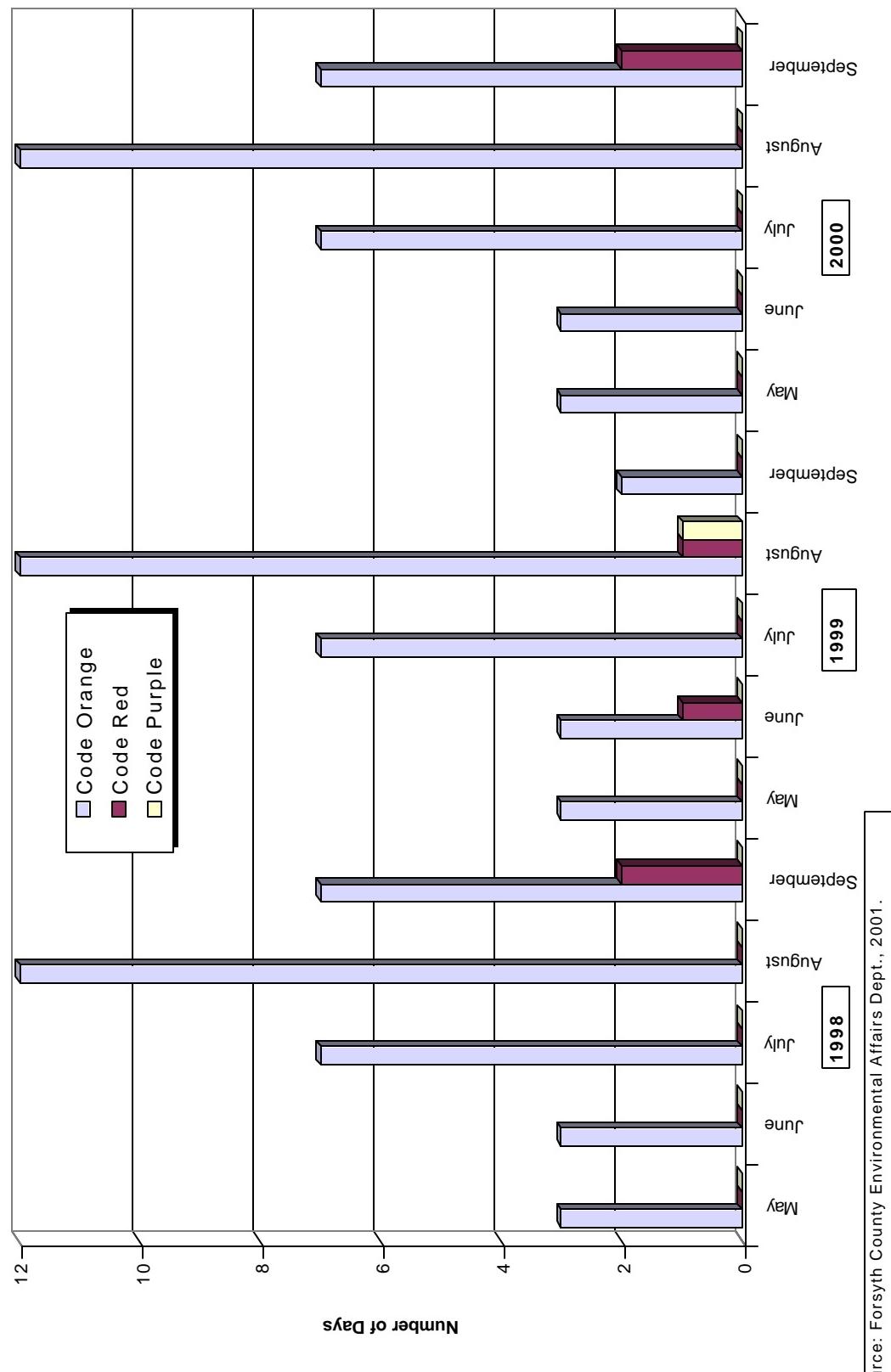
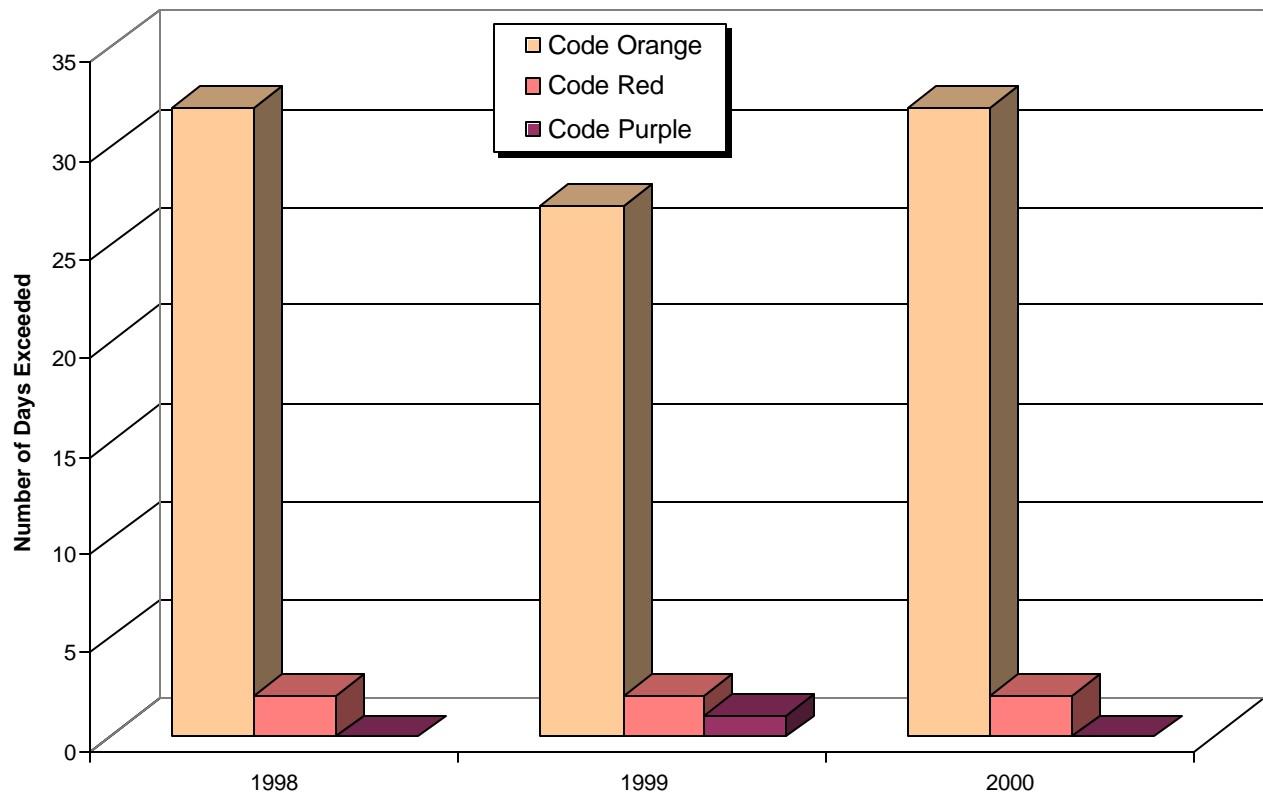


Table 7-10: Annual Ozone Exceedances in the Triad Region by Code, 1998-2000			
Year	Number of Days at:		
	Code Orange	Code Red	Code Purple
1998	32	2	0
1999	27	2	1
2000	32	2	0

Source: Forsyth County Environmental Affairs Dept., 2001.

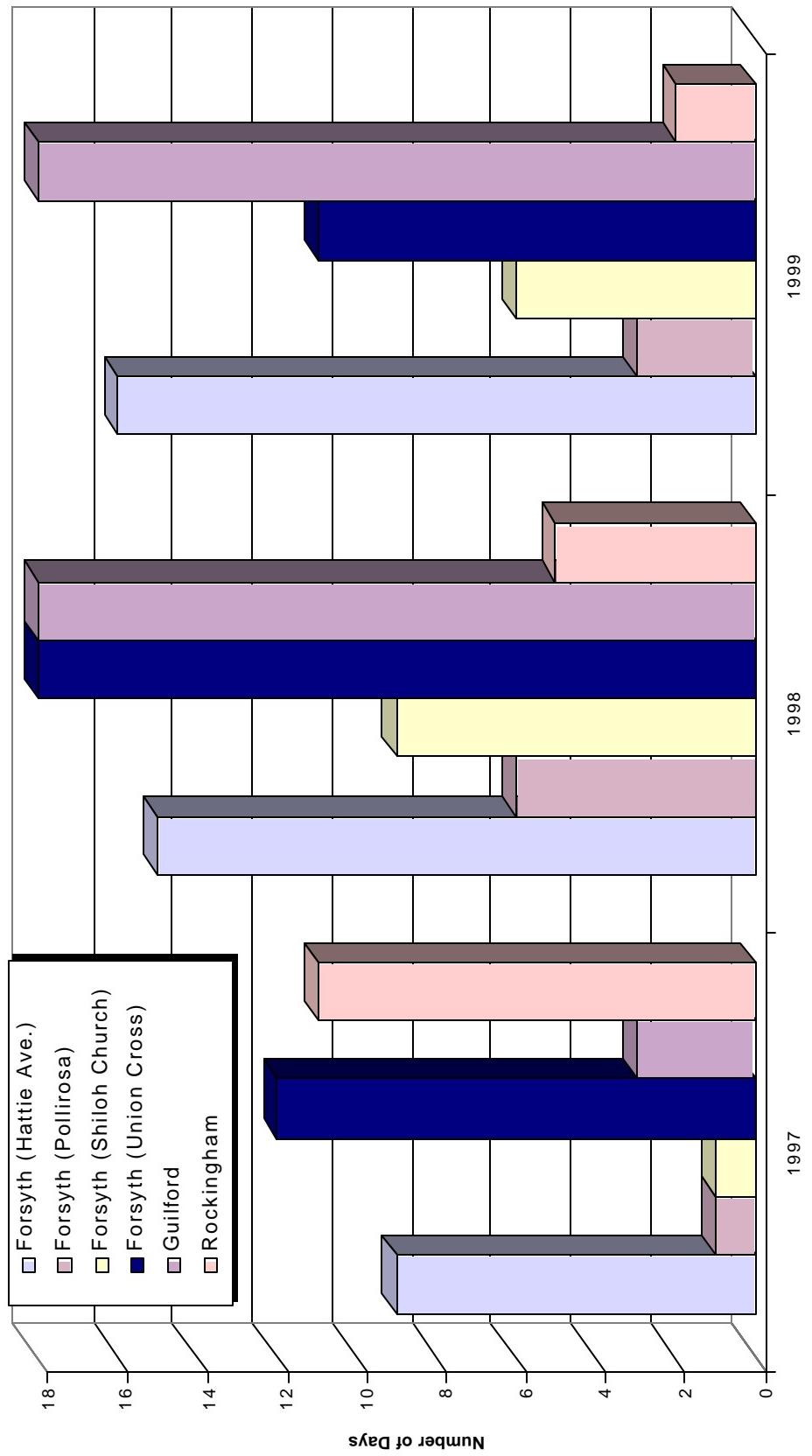
Figure 7-4: Annual Ozone Exceedances in the Triad Region by Code, 1998-2000



Source: Forsyth County Environmental Affairs Dept., 2001.

Table 7-11: Triad Regional Ozone Exceedances, 1997-1999			
Site	County	Year	Annual Exceedances
Hattie Ave.	Forsyth	1997	9
		1998	15
		1999	16
		1997	1
Pollirosa	Forsyth	1998	6
		1999	3
		1997	1
		1998	9
Shiloh Church	Forsyth	1999	6
		1997	12
		1998	18
		1999	11
Union Cross	Forsyth	1997	3
		1998	18
		1999	18
		1997	11
McLeansville	Guilford	1998	5
		1999	18
		1997	11
		1998	5
Bethany	Rockingham	1999	2
Source: NC Dept. of Environment & Natural Resources, Div. of Air Quality, 2000.			

Figure 7-5: Triad Regional Ozone Exceedances, 1997-1999



Source: NC Dept. of Environment & Natural Resources, Div. of Air Quality,

ENDANGERED SPECIES

In 2000, the federal and state lists showed only one Endangered species in Guilford County, the Bald Eagle. However, on the state list, there were 14 species listed as Significantly Rare or Of Special Concern, meaning that state or federal action could be possible in the future, and six habitats listed as Special Natural Communities. Guilford County listed a lower number of Endangered, Threatened, or “Special Concern” species than any of the other counties in the study area, except for Alamance, a county smaller in size. This was perhaps due to the urbanization of the county.

Table 7-12: Federally Protected Species in Triad Regional Counties, 2000					
Status	Alamance	Forsyth	Guilford	Randolph	Rockingham
Endangered Species		Red-cockaded woodpecker (V) Small-anthered bittercress (VP)		Cape Fear shiner (V)	Smooth coneflower (VP)
		Bog turtle (V)	Bald eagle (T)		
Threatened Species				Carolina darter (V) Carolina redhorse (V)	
				Atlantic pigtoe (I) Brook floater (I)	
Species of Concern*				Carolina creekshell (I) Pee Dee crayfish ostracod (I)	Heller's trefoil (VP)
Total	4	3	1	7	2

Source: US Fish & Wildlife Service, NC Ecological Services, "List of Endangered & Threatened Species, as Well as Species of Concern by County for NC", Feb. 2001. *Potential Threatened Species, protected by state law. Key: V=Vertebrates, I=Invertebrates, VP=Vascular Plants.

Table 7-13: State Protected Species & Habitats in Triad Regional Counties, 2000

Table 7-13: State Protected Species & Habitats in Triad Regional Counties, 2000					
Status	Alamance	Forsyth	Guilford	Randolph	Rockingham
Endangered Species	Red-Cockaded Wood-pecker (B)			Cape Fear Shiner (F)	Smooth Coneflower (VP)
	Bog Rose (VP)			Schweinitz's Sunflower (VP)	Goldenseal (VP)
	Small-Anthered Bittercress (VP)	Bald Eagle (B)		Brook Floater (Mk)	
Threatened Species	Yellow Fringeless Orchid (VP)			Roanoke Slabshell (Mk)	
	Small's Portulaca (VP)			Atlantic Pigtoe (Mk)	
	Squawfoot (Mk)			Squawfoot (Mk)	
	Yellow Lampmussel (Mk)	Bog Turtle (R)		Georgia Aster (VP)	Mole Salamander (A)
					Four-Toed Salamander (A)
					Riverweed Darter (F)
					Roanoke Hog Sucker (F)
					Bigeye Jumprock (F)
					Notched Rainbow (Mk)
					Eastern Creekshell (Mk)
					Caddisfly-Ceraclea men-taria (I)
					Mayfly-Ephemerella berm-eri (I)
					Caddisfly-Micrasema sprulesi (I)
					Blattened Entodon (Mo)
					Thin-Pod White Wild Indigo (VP)
					American Barberry (VP)
					Loggerhead Shrike (B)
					Black Vulture (B)
					Loggerhead Shrike (B)
					Blattened Entodon (Mo)
					Thin-Pod White Wild Indigo (VP)
					American Barberry (VP)
					Loggerhead Shrike (B)

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Table 7-13: State Protected Species & Habitats in Triad Regional Counties, 2000

Status	Alamance	Forsyth	Guilford	Randolph	Rockingham
Four-Toed Salamander (A)	Appalachian Golden-Banner (VP)	Dissected Toothwort (VP)	Greensboro Burrowing Crayfish (C)	Piedmont Indigo Bush (VP)	Alabama Grape Fern (VP)
Piedmont Horsebalm (VP)	Long-Bracted Frog Orchid (VP)	Piedmont Horsebalm (VP)	Heller's Rabbit Tobacco (VP)	American Barberry (VP)	Carolina Birdfoot-Trefoil (VP)
Notched Rainbow (MK)	Granite Flatsedge (VP)	Northern Green Orchid (VP)	Glade Wild Quinine (VP)	Dissected Toothwort (VP)	Glade Wild Quinine (VP)
Eastern Creekshell (MK)	Heller's Rabbit Tobacco (VP)	Purple Fringeless Orchid (VP)	Crested Coralroot (VP)	Cliff Stonecrop (VP)	
Narrow-Leaved Aster (VP)	Northern Green Orchid (VP)	Dwarf Chinquapin Oak (VP)	Pursh's Wild-Petunia (VP)	Virginia Cup-Plant (VP)	
Significantly Rare, of Special Concern, or Candidate Species	American Barberry (VP)	Purple Fringeless Orchid (VP)	Carriion-Flower (VP)	Southeastern Bold Goldenrod (VP)	
Buttercup Phacelia (VP)	Pursh's Wild-Petunia (VP)	Appalachian Golden-Banner (VP)	Canby's Bulrush (VP)	Pursh's Wild-Petunia (VP)	
Sweet Pinesap (VP)	Northern Cup-Plant (VP)		Biltmore Carrion-Flower (VP)	Canby's Bulrush (VP)	
				Glade Bluecurls (VP)	
				Basic Mesic Forest (Piedmont subtype)	
				Basic Oak-Hickory Forest	
				Dry Oak-Hickory Forest	
				Dry-Mesic Oak-Hickory Forest	
				Floodplain Pool	
				Low Elevation Seep	
				Mesic Mixed Hardwood Forest (Piedmont subtype)	
				Piedmont Monadnock Forest	
				Piedmont/ Coastal Plain Acidic Cliff	
				Piedmont/ Coastal Plain Heath Bluff	
				Piedmont Mixed Hardwood Forest (Piedmont subtype)	
				Piedmont/ Low Mountain Alluvial Forest	
Special Natural Community/ Habitat	Basic Mesic Forest (Piedmont subtype)		Rocky Bar & Shore	Piedmont/ Coastal Plain Heath Bluff	

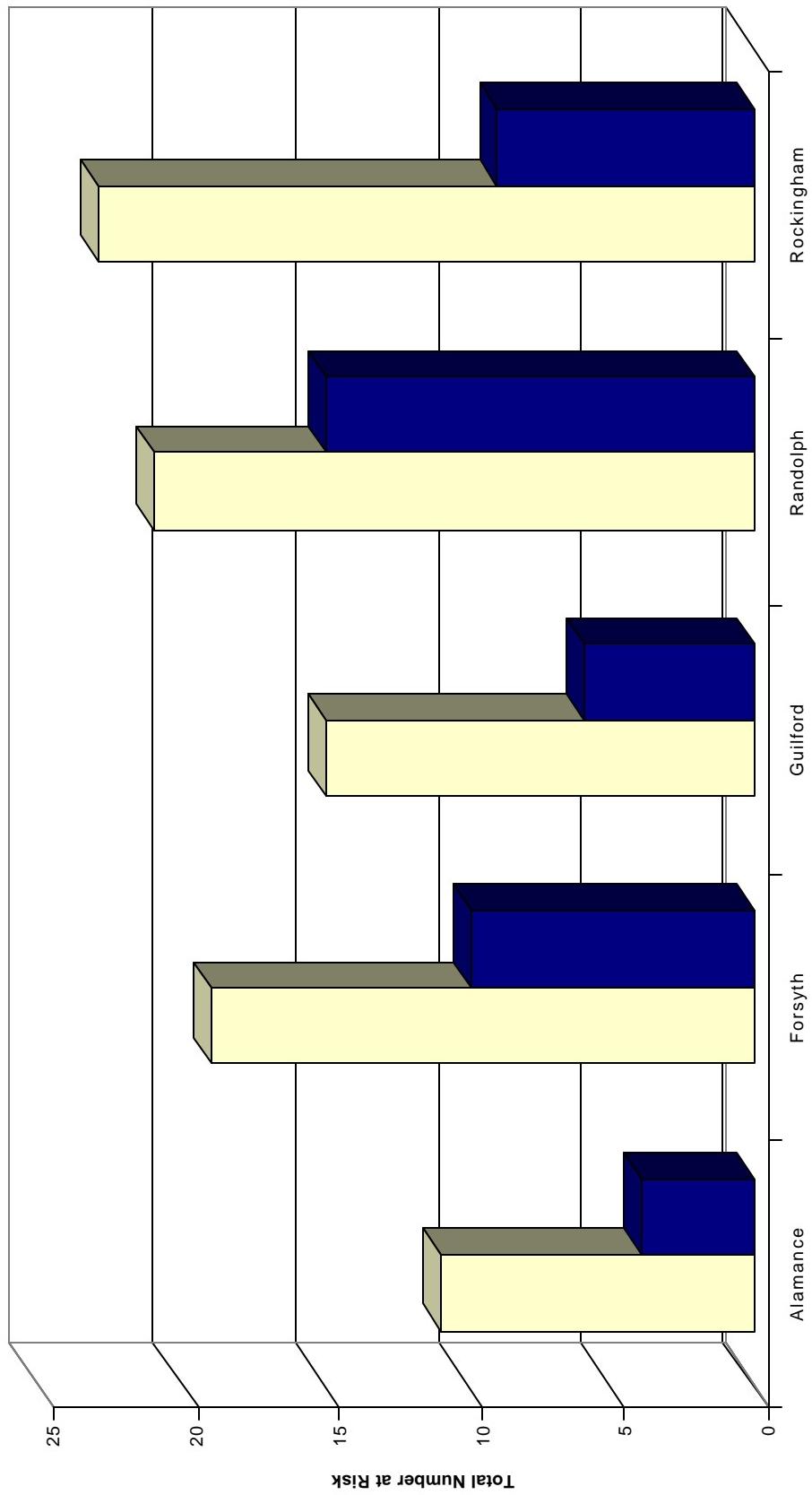
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Table 7-13: State Protected Species & Habitats in Triad Regional Counties, 2000

Status	Alamance	Forsyth	Guilford	Randolph	Rockingham
Special Natural Community/ Habitat	Basic Oak-Hickory Forest Upland Depression Swamp Forest	Piedmont/ Coastal Plain Acidic Cliff	Piedmont/ Low Mountain Alluvial Forest	Upland Depression Swamp Forest	Piedmont/ Low Mountain Alluvial Forest
Total Species	11	19	15	21	23
Total Habitats	4	10	6	15	9
Grand Total	15	29	21	36	32

Source: NC Natural Heritage Program, "Natural Heritage Program Database", Sept. 2000. Key: (A)-Amphibian, (B)-Bird, (C)-Crustacean, (F)-Fish, (I)-Insect, (M)-Mammal (Mk)-Mollusk, (Mo)-Moss, (R)-Reptile, (VP)-Vascular Plant.

Figure 7-6: State Protected Species & Habitats in Triad Regional Counties, 2000



[Source: NC Natural Heritage Program, "Natural Heritage Program Database", Sept.]

Chapter 8

Water and Sewer

WATER AND SEWER SYSTEM: INTRODUCTION

Greensboro's primary water supply comes from the three City-owned lakes, Brandt, Higgins, and Townsend, all located to the north. Water is pumped from those three lakes to water plants, where it is treated and then pumped to the Greater Greensboro area.

Greensboro is a city that grew up around railroad lines, rather than a natural water source, such as a river. As such, the water supply is limited, although the City continues to grow. Greensboro's supplemental water supply comes from Reidsville, Winston-Salem, and High Point. These municipalities sell Greensboro some of their water. As of 2000, the agreements with other cities are for emergencies only and are not necessarily long-term options. Reidsville is the exception, as that city may provide Greensboro with five to six million gallons of water per day on an ongoing basis.

Sewer capacity is another critical issue for Greensboro, as this also has an impact on growth and development. This lack of access to a major river can cause difficulties on wastewater. This has an effect on the City's ability to discharge treated wastewater into streams because they limit the City's legal outflow.

Primary information in this chapter serves to describe the various aspects of the City's water and sewer system.

WATER AND SEWER: SUMMARY HIGHLIGHTS

Water Supply

Greensboro's primary water supply comes from the three City-owned lakes, Brandt, Higgins, and Townsend. These lakes cover 2,507 acres and contain 9.5 billion gallons of water. Working volume for the three lakes totals 7,930 million gallons of raw water.

The Randleman Dam project was permitted in April 2001 and construction is scheduled to begin during the summer of 2001. The project is scheduled to be complete by 2005-2006.

The addition of the Randleman Reservoir will increase Greensboro's water capacity by 28 mgd or approximately 75%. This capacity should meet Greensboro's water needs for the next 25 to 35 years.

Greensboro's water supply is limited, although the City continues to grow. Greensboro's supplemental water supply comes from Reidsville, Winston-Salem, and High Point. These municipalities sell Greensboro some of their water. As of 2000, the agreements with other cities are for emergencies only and are not necessarily long-term options. Reidsville is the only exception, as that city may provide Greensboro with five to six million gallons of water per day on an ongoing basis.

Water Capacity & Demand

Greensboro's water capacity is limited by its geography. As stated in the Natural Environment chapter (7), Greensboro is located at the headwaters (or "top of the hill") of the Cape Fear River Basin. In addition, permitting requirements and other federal regulations make it difficult to increase capacity.

Average daily demand between 1990 and 1999 has been 32.55 mgd. The 30-year safe yield is 36 mgd. Peak daily demand for the period ranged from a high in 1998 of 50.65 to a low of 39.50 in 1991.

Sewer Capacity & Demand

For the same geographical reason that the water capacity is limited, the wastewater discharge capacity is limited. In fact, the City's long-term wastewater capacity is more problematic than its water capacity, since the approval of the Randleman Dam.

Capacity for sewer service has increased 2 mg since 1998 to 38 mg. Sewer allocation increased to 40 mgd capacity in 2000, will increase to 46 mgd capacity in 2001, and 56 mgd for 2003.

Water and Sewer Service Areas

Historically, until 1998, Greensboro followed a policy of extending water and sewer service essentially wherever it was requested and feasible. Since 1998, however, the City has adopted a policy of extending water and sewer service only to areas outside the City within a limited boundary. This change is in keeping with the clear need to more effectively manage Greensboro's limited water and sewer treatment resources. [See Water and Sewer Services Area map for boundary line.]

Long term (15 years for sewer, 25-35 years for water), Greensboro will likely have reached its limit of conventional water and wastewater treatment resources. If the City is to continue to grow, alternative methods of increasing these resources will be necessary to service demand. Likely alternatives would involve such measures as interbasin transfers, indirect potable reuse of treated effluent (recycling), and additional (and more stringent) conservation measures.

WATER AND SEWER SYSTEM

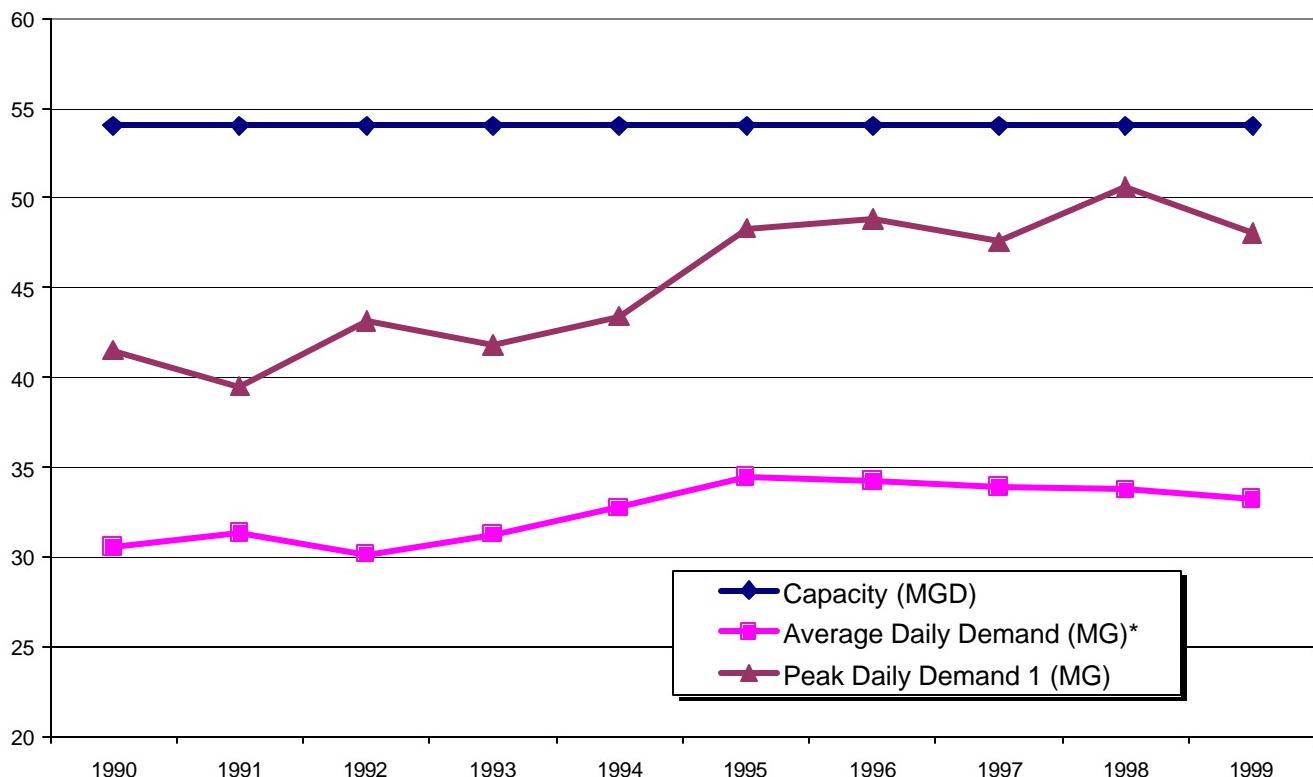
Greensboro's water is supplied to its citizens by pumping raw water from the three City-owned lakes into the water plants, where it is treated and then pumped to homes and businesses throughout the Greater Greensboro area. Greensboro's peak daily capacity for water is 54 million gallons per day (mgd). This is the capacity used to satisfy demand on hot dry days when citizens are using higher than normal amounts of water to irrigate lawns, in addition to the usual residential, commercial, and industrial demands. Capacity is limited by what the City lakes are capable of supplying day after day, over a long period of time. If 54 million gallons per day were supplied continuously over several months, it is likely that the lakes would be drawn down to dangerously low levels unless an unusually high amount of rain fell, in which case the demand on water for irrigation purposes would be very low.

Table 8-1: Peak Water Capacity and Demand for Greensboro Service Area, 1990-1999

Year	Capacity (MGD)	Average Daily Demand (MG)*	Peak Daily Demand 1 (MG)
1990	54	30.55	41.51
1991	54	31.34	39.50
1992	54	30.14	43.11
1993	54	31.27	41.80
1994	54	32.74	43.42
1995	54	34.46	48.31
1996	54	34.21	48.80
1997	54	33.88	47.58
1998	54	33.72	50.65
1999	54	33.19	48.02
Average	N/A	32.55	45.27

Source: Greensboro Water Resources Dept., 2000. *Based on Calendar Year Pumpage Report for treated water.

Figure 8-1: Peak Water Capacity and Demand for Greensboro Service Area, 1990-1999



Source: Greensboro Water Resources Dept., 2000. *Based on Calendar Year Pumpage Report for treated water.

Determining the lakes' capacity to supply water over a long period of time is complicated. Some of the factors considered in determining capacity are historic rainfall and streamflow records, and the volume of the lakes. The analysis shows that the lakes and water plants should not be relied upon to supply more than about 31.5 million gallons per day (mgd) on an annual average basis. Otherwise, the City will run the risk of dangerously low lake levels. For this reason, the City's lake water supply is supplemented by purchasing up to three mgd of water from Winston-Salem and six mgd from Reidsville, so that 38.5 mgd can be safely supplied on an average annual basis.

Figure 8-2: Greensboro Water Usage, 1990-2005

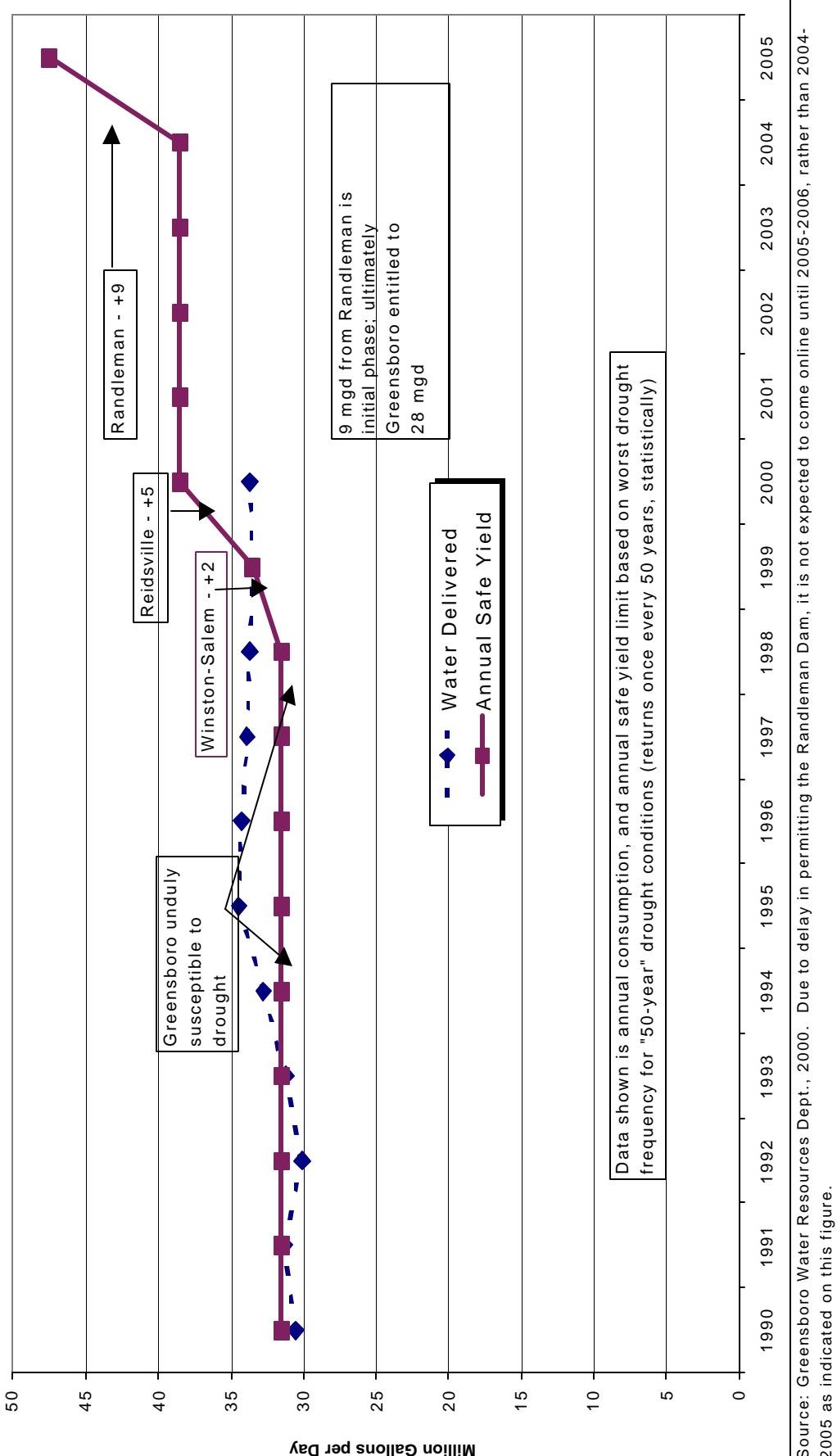


Table 8-2: Greensboro's Emergency Water Supply Cities, 2000		
City	Amount of Water	Status
High Point	1 mgd*	Complete
Winston-Salem	1-3 mgd*	Complete
Reidsville	2.5 - 6 mgd*	Complete

Source: Greensboro Water Resources Dept., 2000. The current (as of the year 2000) agreements with other cities are emergency agreements & not necessarily long-term options, with the exception of Reidsville which may provide us with 5-6 million gallons of water per day on an ongoing basis. *Million gallons per day.

Greensboro's consolidated water and sewer utility presently serves approximately 85,200 customers within the city limits and in various unincorporated areas of Guilford County. Major users include Oak Ridge Textiles, Lorillard Tobacco Company, Elastic Fabrics of America, Procter & Gamble, Konica Manufacturing USA, Precision Fabrics, Sheraton Greensboro Hotel at Four Seasons, University of North Carolina at Greensboro, Moses H. Cone Hospital, and Cone Mills Corporation.

Historically, until 1998, Greensboro followed a policy of extending water and sewer service essentially wherever it was requested and feasible. Since 1998, the City has adopted a policy of extending water and sewer service only to areas outside the City within a limited boundary. This change is in keeping with the clear need to more effectively manage Greensboro's limited water and sewer treatment resources. [See Water and Sewer Service Area map for boundary line.]

Two water filtration plants, two pumping stations, and a distribution system furnish water to the City and a portion of the unincorporated areas of the County. A \$4.5 million renovation of the Mitchell Water Plant was completed in 1990. A \$9.4 million renovation of the Townsend Water Plant was completed in 1995. Three City-owned lakes, fed by Brushy Creek, Horsepen Creek and Reedy Fork Creek, supply raw water. The water filtration plants have a combined capacity of 54 million gallons per day. Average consumption during calendar year 2000 was 33.7 mgd. The City has a 23 million gallon (mg) finished water storage capacity. There are 7.5 mg of clearwell storage and 15.5 mg of elevated storage capacity.

Table 8-3: 1999 Summary of Raw Water Supplies	
Facility	Working Volume (MGD)*
Lake Higgins	792
Lake Brandt	1752
Lake Townsend	5386
Total	7930

Source: Greensboro Water Resources Dept., 2000.
*30 year safe yield (MGD)=36.

Table 8-4: Greensboro's Water Supply, 2000			
Lake	Acres Covered	Gallons of Water* Contained	Gallons of Water* in Usable Storage
Brandt	787	2.2	1.75
Higgins	280	0.8	0.8
Townsend	1,440	6.5	5.4

Source: Greensboro Water Resources Dept., 2000. *In Billions.

Greensboro's water capacity is limited because it is supplied by small streams in and around the City at the headwaters of the Cape Fear Basin. This is the same geographical reason that the wastewater discharge capacity is limited. In fact, the City's long-term wastewater capacity is more problematic than its water capacity, since the approval of the Randleman Dam.

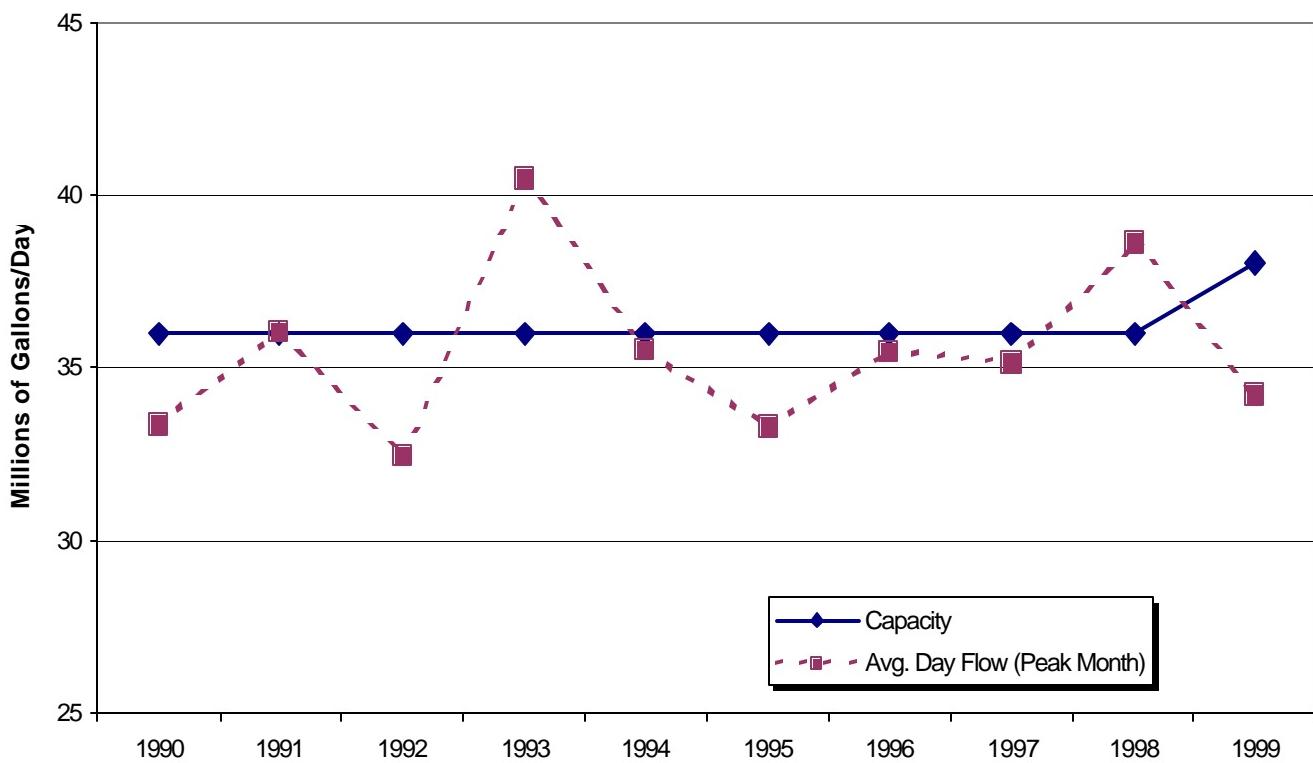
The City operates two wastewater treatment plants using the activated sludge process. Both of these plants are tertiary plants employing nitrification. The total capacity of 38 mgd is divided between the North Buffalo Wastewater Treatment Plant (16 mgd) and the T.Z. Osborne Wastewater Treatment Plant (22 mgd). The average sewage treatment during calendar year 2000 was 31.5 mgd. Both plants meet final National Pollutant Discharge Elimination System (NPDES) permit limits.

Table 8-5: Sewer Capacity and Demand for Greensboro Service Area, 1990-1999

Year	Capacity (MG)	High Flow Month	Avg. Day Flow for Peak Month (MGD)
1990	36	May	33.35
1991	36	Apr	36.03
1992	36	Apr	32.43
1993	36	Apr	40.44
1994	36	Mar	35.54
1995	36	Mar	33.32
1996	36	Jan	35.44
1997	36	Mar	35.10
1998	36	Jan	38.65
1999	38	Sep	34.18

Source: Greensboro Water Resources Dept., 2000.
Note: Sewer allocation increased to 40 MG Capacity for 2000. It will increase to 46 MG Capacity for 2001 & 56 MG for 2003.

Figure 8-3: Sewer Capacity and Demand for Greensboro Service Area, 1990-1999



Source: Greensboro Water Resources Dept., 2000. Note: Sewer allocation increased to 40 MG Capacity for 2000. It will increase to 46 MG Capacity for 2001 & 56 MG for 2003.

The City issued \$50 million Combined Enterprise System Revenue Bonds in 1995 to finance various improvements to the water and sanitary sewer system. Approximately \$40 million is being used to expand the capacity of the T. Z. Osborne Wastewater Treatment Plant (WWTP) from 20 mgd to 30 mgd, to construct centrifuges and a sludge incinerator, and to construct transfer lines between the Osborne and North Buffalo plants. The centrifuges and the sludge incinerator are in operation. The expansion of the Osborne Plant began in April 1996 and was expanded to 22 mgd in January 1999. The expansion from 22 mgd to 30 mgd was completed in June 2001. This expansion is designed to meet projected demand through the year 2010.

In addition, by 2003, based on recent decisions to invest in the expansion of the Osborne Plant, Greensboro will have 56 mgd of sewage treatment capacity. Under current growth rates, this capacity will likely last approximately 12-15 years.

In 1998, the City issued \$40 million in Combined Enterprise System Revenue Bonds. These funds will allow Greensboro to rehabilitate a City reservoir for increased water storage capacity, upgrade systems to comply with the State clean water guidelines, replace sanitary sewer system lift stations, and construct new water feeder mains, lines, and tanks, among

other projects.

Greensboro has entered into a service agreement with Guilford County that provides for the construction of water and sewer facilities outside the City's corporate limits. The Installment Financing Agreement requires the County to pay the City for the contracted amount of work to be performed. Greensboro lets all contracts and manages the construction program. The revenues derived from water and sewer service to these areas are divided between the City and County on a 75%-25% basis, respectively. Over \$30 million has been expended in the development of water and sewer facilities to provide service in the County. During 1998-1999, approximately \$6.5 million in construction was accomplished through this agreement.

Since 1995, Greensboro has spent or budgeted for expenditures of \$127 million in badly needed capital improvements for water and sewer. These investments have necessitated large increases in water and sewer rates during that same period, ranging from 47% for low volume users to 278% for high volume users. Despite these increases, Greensboro's water and sewer rates remain below the average for the 13 largest cities in North Carolina.

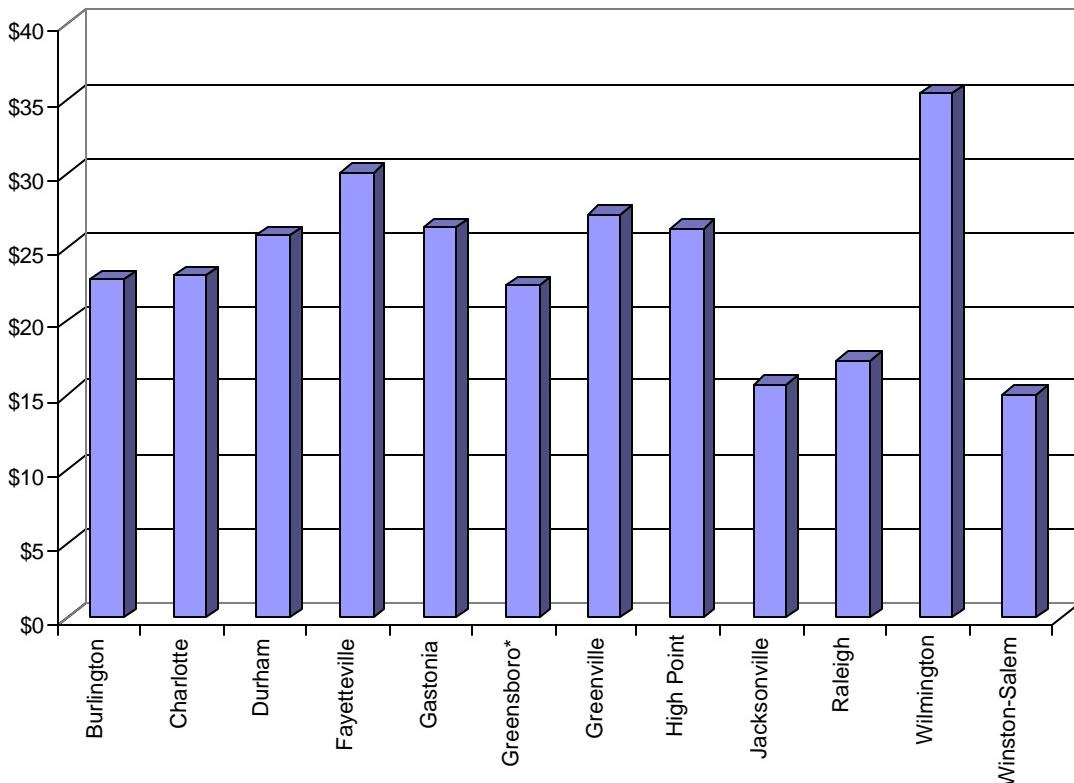
Table 8-6: Comparative Average Water and Sewer Charges for Selected NC Cities, July 2001

Municipality	Bill Charge
Asheville	\$47.97
Burlington	\$22.90
Charlotte	\$23.12
Durham	\$25.84
Fayetteville	\$30.11
Gastonia	\$26.40
Greensboro*	\$22.48
Greenville	\$27.27
High Point	\$26.32
Jacksonville	\$15.70
Raleigh	\$17.36
Wilmington	\$35.52
Winston-Salem	\$15.11

Source: Greensboro Water Resources Dept., 2001.

*This rate is effective until January 1, 2002, at which time the rate will be \$24.47. Note: Rate represents the average residential use, which for Greensboro is 6,000 gallons per month inside the City limits. Also, cities above were chosen to match the study conducted by the Water Resources Dept.

Figure 8-4: Comparative Average Water and Sewer Charges for Selected NC Cities, July 2001



Source: Greensboro Water Resources Dept., 2001. *This rate is effective until January 1, 2002, at which time the rate will be \$24.47. Note: Cities above were chosen to match the study conducted by the Water Resources Dept.

The Piedmont Triad Regional Water Authority, jointly organized by six local governments, including the City of Greensboro, has agreed to build and operate the estimated \$117 million Randleman Dam, Water Plant, and Lake project to meet the area's water needs. The project will serve Randolph County and five municipalities located in Guilford and Randolph Counties: Greensboro, High Point, Jamestown, Archdale, and Randleman. The project was originally scheduled to begin in 1998 and to be completed by the year 2000. However, due to delays in obtaining the required regulatory approvals and permits, the project did not begin as scheduled. The project was permitted in April 2001, construction is scheduled to begin during the summer of 2001, and is anticipated to be completed by 2005-2006. The addition of the Randleman Reservoir will increase Greensboro's water capacity by 28 mgd or approximately 75%. This capacity should meet Greensboro's water needs for the next 25 to 35 years.

Long term (15 years for sewer, 25-35 years for water), Greensboro will likely have reached its limit of conventional water and wastewater treatment resources. If the City is to continue to grow, alternative methods of increasing these resources will be necessary in order to service demand. Likely alternatives would involve such measures as interbasin transfers, indirect potable reuse of treated effluent (recycling), and additional (and more stringent) conservation measures.

Chapter 9

Transportation

TRANSPORTATION: INTRODUCTION

The Greensboro Department of Transportation (GDOT) provides transportation services to Greensboro citizens through five divisions: Business/ Parking, Public Transportation, Engineering, Planning, and Operations. Among its responsibilities, GDOT studies and manages traffic in the City of Greensboro.

The Piedmont Triad International Airport (PTIA), located eight miles west of Greensboro's downtown area, is one of the major commercial and private aviation centers in the southeast. It is owned and operated by the Piedmont Triad International Airport Authority. American, Continental, Delta, United, US Airways, AirTran, Northwest, and Air Canada provide scheduled passenger service. Shuttle America, American Eagle, ASA, Comair, United Express, Piedmont Airlines, and USAir Express offer commuter service. In calendar year 1999, approximately 85 scheduled daily flights handled over 1.35 million departing passengers.

This chapter describes the operations of the five GDOT divisions, thoroughfare and intersection congestion, parking, the PTIA, and the various transportation modes used by the citizens of Greensboro and selected comparison areas.

TRANSPORTATION: SUMMARY HIGHLIGHTS

Public Transit

Between FY 1995-96 and FY 2000-2001, ridership on the Greensboro Transit System increased from 1,769,943 to 2,021,074 (14.2 percent). Fixed Route ridership also increased, from 1,666,811 to 1,865,878 (11.9 percent).

Between FY 1997-1998 and FY 2000-2001, total Flex Route services increased from 15,710 to 60,608, which was a 286 percent increase in ridership.

Fixed, Flex and Demand Response (SCAT) hours are important yardsticks in measuring system effectiveness. From FY 1995-1996 to FY 2000-2001, Fixed Route hours increased by 35 percent. Fixed Route riders per hour declined from 23.71 to 19.66. From FY 1997-1998 to FY 2000-2001, Flex Route hours increased from 4,635 to 7,560, an increase of 63 percent, with an increase in riders per hour from 3.40 to 8.02. Demand Response hours increased by 1 percent from fiscal years 1995-1996 to 2000-2001 with riders per hour declining as well, from 2.84 to 2.59.

Between FY 1995-1996 and FY 1999-2000, Greensboro's per capita total system ridership experienced a 13.6 percent decrease. This indicates that a smaller percentage of the population is using mass transit. The percentage of the population who is using mass transit is also using it more often. FY 1999-2000 per capita total ridership was 7.88.

Downtown Parking

Greensboro's Central Business District (CBD) has approximately 4,280 public parking spaces in the following locations: 2,821 in decks, 670 in on-street metered and 331 on-street un-metered (time zone), and 458 in seven surface lots.

Traffic Congestion

The citizens of Greensboro recently passed a \$71.75 million bond package for transportation improvements in Greensboro to be spent over the next ten years, including \$51.5 million for roadway expansions and widening. Many of the roadway expansion and/or widening projects included in the bond package are State system streets that NCDOT does not plan to improve in the near future. See map for City and State roadway improvements planned through 2025.

The two congestion tables and maps in this chapter illustrate the severe traffic flow problems at selected intersections and along selected street segments in Greensboro. Congested intersections increased from 21 in 1990 to 98 in 2000. Similarly, congested arterials rose from eight miles in 1990 to 40 miles in 2000.

Between 1989 and 1999 during a.m. and p.m. peak travel times, the top ten congested Greensboro City thoroughfares had a Level of Service (LOS) F. Level F is the lowest level of service and defined as extremely slow with extreme delay (less than 25 percent of the free flow speed).

In 1999, Greensboro's top 25 highest average daily traffic intersections were also classified at Level of Service (LOS) F. LOS F for intersections indicates an average delay of less than 80 seconds per vehicle.

Mode Share

In 1990, driving alone was the principal mode of travel in Greensboro, followed by carpooling and walking. Greensboro citizens were also driving alone at a higher level than the nation. Citizens used public transportation at a level much lower than that of the United States, but higher than North Carolina overall. Traffic congestion is a major quality of life issue in most communities, including Greensboro. Increased multi-modal use, flexible work schedules, telecommuting, and infill development, in combination with roadway widening will be needed to maintain an overall level of traffic congestion that is acceptable to the citizens of Greensboro.

Airport

The City of Greensboro's transportation needs are also served by the Piedmont Triad International Airport (PTIA). Aircraft operations and the number of passengers flying out of Piedmont Triad International Airport increased from 1996-2000, by 5.6 percent and 7.5 percent respectively. Total cargo poundage carried (US mail, and express/ freight) declined 7.0 percent.

The average number of flights per day at the Piedmont Triad International Airport began with 62 in 1993, increased steadily to the peak year of 1994 (149), and has averaged 79 flights per day between 1996 and 1999. The diminishing number of flights was caused mainly by the loss of the hubs of various airlines including Continental, Tradewinds and Eastwinds.

TRANSPORTATION OPERATIONS

The transportation services provided by the Greensboro Department of Transportation (GDOT) to Greensboro citizens include public transit, parking, bikeways, transportation planning, sidewalks, traffic signals and signs, street lighting, the storm drainage system, street repair and cleaning, loose-leaf removal, and snow and ice removal.

The following is a description of those services.

Transit System

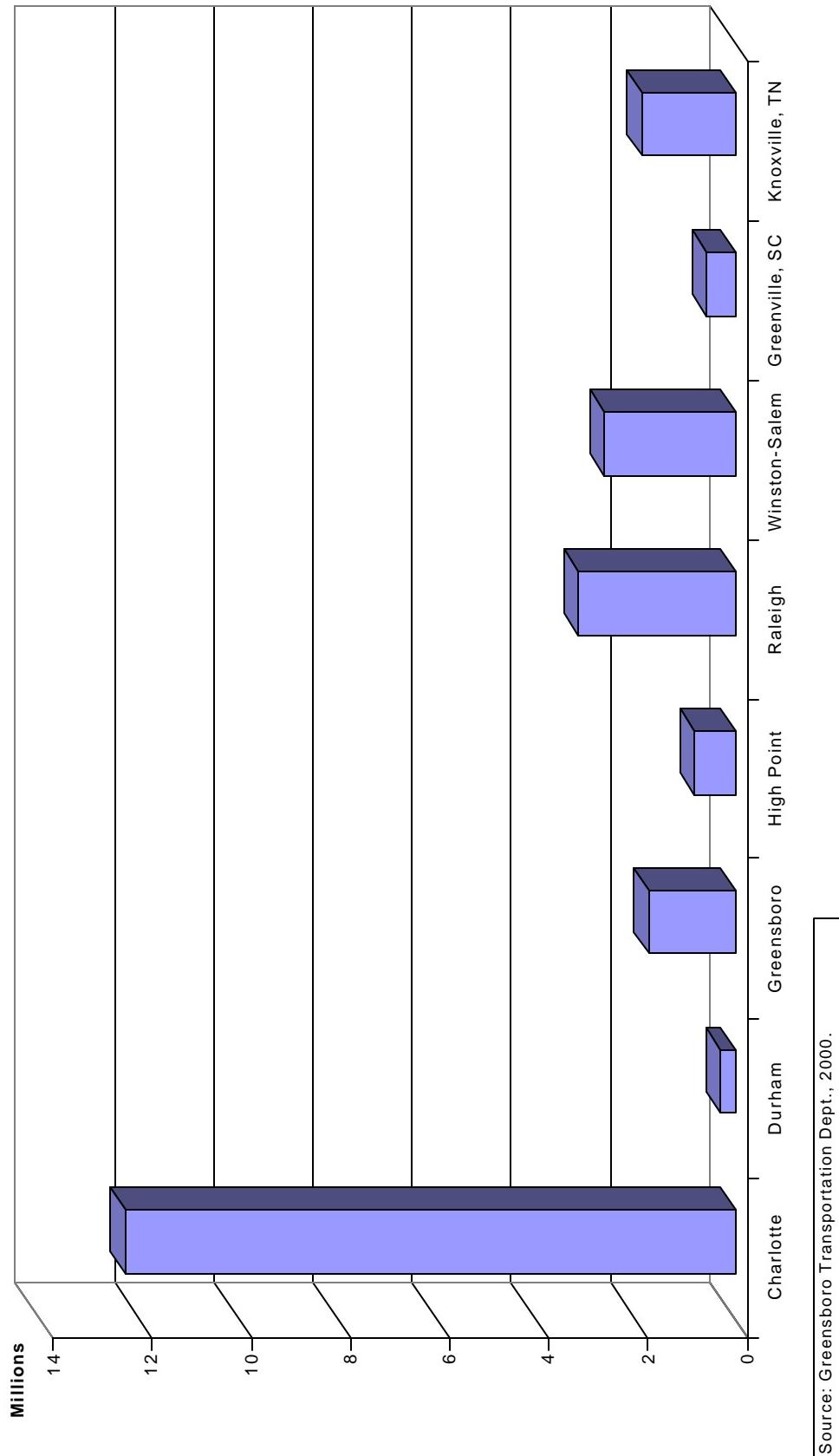
The Greensboro Transit Authority (GTA) provides Fixed Route, Specialized Community Area Transportation (SCAT) for the disabled, Flex Route Services, and Auxiliary Programs. As of September 30, 2000, Career Express is the only Flex Route still in service. Flex Route Services consist of Late Line, Career Express, and TAG. Auxiliary Programs consist of Adopt-A-Stop, Advertising, Bus Rider Orientation, Community Relations, Corporate Connections, Rack-n-Roll, and Travel Training. Ridership during FY 2000-2001 was 1,865,878 for Fixed Route, 94,588 for Specialized Community Area Transportation (SCAT) and 60,608 for the Flex Route. Service vehicles number 28 for Fixed Route, 26 for SCAT and some of the service vehicles are re-used for Flex Route Services.

Prior to October 1991, the Duke Power Company operated the bus system under a 50-year franchise agreement. In consideration for being relieved of this obligation, the Company agreed to pay the City of Greensboro \$1.5 million annually over the term of 37 years, with 29 years currently remaining. In addition to the annual payment from the Duke Power Company, the City finances the bus system operations with Federal Urban Mass Transit grants, state grants, bus fare revenues, and a special transit tax. Although the City is authorized to levy a special transit tax of up to \$.035 per \$100 property valuation, the City is currently levying only \$.015 per \$100 property valuation.

Table 9-1: System-Wide Public Transit Ridership for Selected Municipalities, 1999-2000		
NC Municipalities	Total Route Hours	Total Ridership
Charlotte	41,364	12,323,550
Durham	128,943	300,093
Greensboro	112,077	1,763,906
High Point	28,518	831,164
Raleigh	132,198	3,168,642
Winston-Salem	119,264	2,650,760
Out-of-State Municipalities		
Greenville, SC	33,015	578,508
Knoxville, TN	165,286	1,911,695
Montgomery, AL	NA	NA

Source: Greensboro Transportation Dept., 2000.

Figure 9-1: System-Wide Public Transit Ridership for Selected Municipalities, 1999-2000

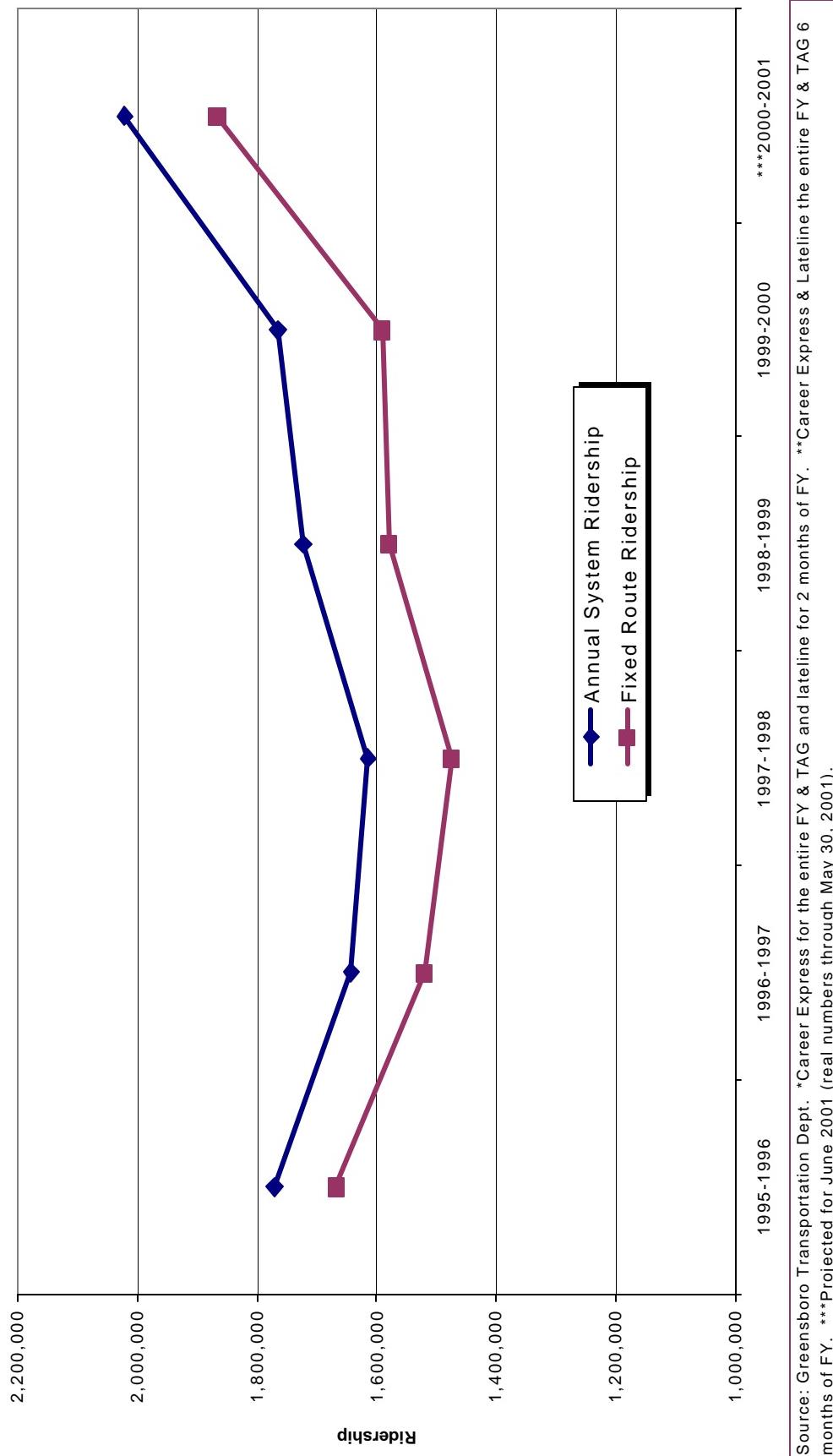


Source: Greensboro Transportation Dept., 2000.

Type	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	***2000-2001
Annual System Ridership	1,769,943	1,641,525	1,613,413	1,723,079	1,763,906	2,021,074
Fixed Route Hours	70,297	67,932	62,404	63,886	68,387	94,927
Fixed Route Ridership	1,666,811	1,519,958	1,474,339	1,577,975	1,588,762	1,865,878
Fixed Route Riders per Hour	23.71	22.37	23.62	24.69	23.23	19.66
Flex Route Hours	NA	NA	*4,635	**14,546	12,975	7,560
Flex Route Ridership	NA	NA	*15,710	**65,185	96,474	60,608
Flex Route Riders per Hour	NA	NA	*3.40	**4.48	7.44	8.02
Demand Response Hours (SCAT)	36,263	36,392	39,871	26,804	30,715	36,484
Demand Response Ridership (SCAT)	103,132	121,567	123,364	79,919	78,670	94,588
Demand Response Riders per Hour (SCAT)	2.84	3.34	3.09	2.98	2.56	2.59

Source: Greensboro Transit Dept., 2000. *Career Express for the entire FY & TAG & late-line for 2 months of FY. **Career Express & Late-line the entire FY & TAG 6 months of FY. ***Projected for June 2001 (real numbers through May 30, 2001).

Figure 9-2: Greensboro Transit Ridership, 1997-2001

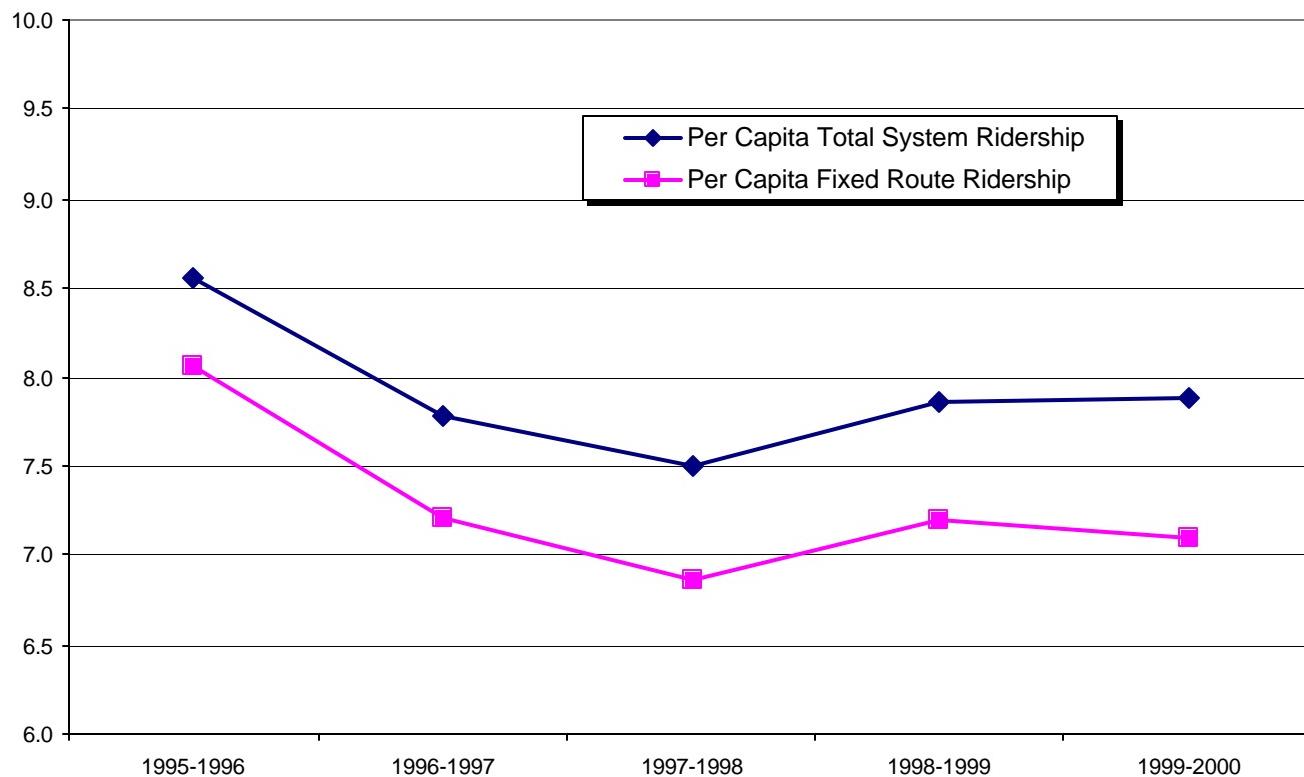


Source: Greensboro Transportation Dept. *Career Express for the entire FY & TAG and lateline for 2 months of FY. **Career Express & Lateline the entire FY & TAG 6 months of FY. ***Projected for June 2001 (real numbers through May 30, 2001).

Table 9-3: Greensboro Per Capita Transit Ridership, 1995-2000					
Fiscal Year	Greensboro Population	Total System Rider-ship	Per Capita To-tal System Rid-ership	Fixed Route Ridership	Per Capita Fixed Route Ridership
1995-1996	206,798	1,769,943	8.6	1,666,811	8.1
1996-1997	210,886	1,641,525	7.8	1,519,958	7.2
1997-1998	215,055	1,613,413	7.5	1,474,339	6.9
1998-1999	219,224	1,723,079	7.9	1,577,975	7.2
1999-2000	223,891	1,763,906	7.9	1,588,762	7.1

Source: Greensboro Transit Dept., 2000.

Figure 9-3: Greensboro Per Capita Transit Ridership, 1995-2000



Source: Greensboro Transportation Dept., 2000.

Table 9-4: Greensboro Transit Flex Route Services, 1997-2001				
	1997-98	1998-99	1999-00	2000-01*
LateLine Ridership	4,706	41,876	56,068	**16,472
Career Express Ridership	10,659	22,362	40,406	44,136
Tag Ridership	345	947	0	0
Total	15,710	65,185	96,474	60,608

Source: Greensboro Transit Dept., 2000. *Projected for 2001 (real numbers through May 30, 2001). **Flex Route Service for LateLine ended 9/30/00.

Parking System

The parking system of the City provides both on- and off-street parking in the central business district (CBD). On-street parking is provided on both a metered and a time zone restricted basis. Surface lots and four parking garages provide off-street parking. The four parking garages provide 2,821 spaces in the CBD, which are supplemented by 1001 on-street metered and time zoned (un-metered) parking spaces, plus several parking lots that provide a combined total of 458 spaces. All together, the City of Greensboro provides 4,280 parking spaces in the CBD.

Table 9-5: Greensboro CBD Parking Facilities, 2001	
Decks	
Davie Street	415
Greene Street	706
Church Street	424
Bellemeade Street	1276
Total	2821
City-Owned Surface Lots	
Elm Street at Greene St.	69
Elm Street at Martin Luther King, Jr. Dr.	27
Summit Avenue	62
Smothers Place at McGee St.	33
Elm Street at McGee St.	73
Federal Place at McGee St.	80
City/County (Land Owned by City)	114
Total	458
On-Street Metered	
Various Streets in CBD	670
On-Street Unmetered	331
Total	1001
Grand Total	4280

Source: Greensboro Transportation Dept., 2001.

Street System

The City of Greensboro is responsible for the maintenance, expansion, and improvement of the local street system. As of June 30, 2000, this street system includes 873 miles of paved streets and 3 miles of unpaved streets. The North Carolina Department of Transportation (NCDOT) is responsible for the maintenance, expansion and improvements of primary and secondary State system routes within the City of Greensboro. The NCDOT is responsible for 236 miles of streets in Greensboro, including the Interstate system, US-routes, and major State Routes.

The NCDOT focuses mainly on maintaining and improving the interstate highways and major freeways. The majority of the projects identified for funding in the State Transportation Improvement Program (STIP) are major freeway enhancements, such as the Greensboro

Urban Loop, the widening of I-40, US-220, and US-70. The City of Greensboro receives funds annually to maintain, expand and improve city streets from a proportion of the state gasoline tax called the Powell Bill fund.

Powell Bill funds are primarily used to maintain city streets. Periodically, Greensboro voters support roadway bond packages in order to make other improvements to the transportation system, such as widening roads, building sidewalks, and expanding transit service. Funds from the \$75 million 1988 transportation bond have nearly been exhausted, and the citizens of Greensboro recently passed a \$71.75 million bond package for street improvements in Greensboro to be spent over the next ten years, including \$51.5 million for roadway expansions and widening. Many of the roadway expansion and/or widening projects included in the bond package are State system streets that NCDOT does not plan to improve in the near future. See map for City and State roadway improvements planned through 2025.

Roadway improvement projects in Greensboro are determined by examining existing traffic conditions and projected traffic growth and/or patterns. The NCDOT maintains a traffic model that projects future traffic patterns in Greensboro. The model projects traffic patterns through the year 2025, and is based on consultation with the City of Greensboro Departments of Transportation and Planning. The City of Greensboro Department of Transportation conducts a periodic assessment of existing traffic conditions in Greensboro through its "Congestion Management Program". Heavily traveled intersections, arterial streets, and freeways are evaluated periodically to assess the traffic carrying capacity of those facilities. As shown on the 1990 Traffic Congestion map, Greensboro had 21 intersections that the Department of Transportation considered highly congested, and eight miles of congested arterial streets during the a.m. and p.m. peak travel times. As shown on the 2000 Traffic Congestion map, Greensboro had 98 intersections that rated as congested or highly congested, and 40 miles of congested arterial streets during a.m. and p.m. peak travel times.

An intersection is considered to be highly congested if the average vehicle has to wait 80 seconds to travel through the intersection. An arterial street (corridor) is considered to be highly congested if the average travel speed along the arterial including stops at intersections is 68 percent lower than the free flow speed along the corridor without stops.

Traffic congestion is a major quality of life issue in most communities, including Greensboro. Increased multi-modal use, flexible work schedules, telecommuting and infill development, in combination with roadway widening will be needed to maintain an overall level of traffic congestion that is acceptable to the citizens of Greensboro.

Table 9-6: Greensboro's Top 25 Highest Average Daily Traffic Intersections, 1999

Rank*	Location	V/C Ratio	Percent Annual Growth	Average Daily Traffic	Comments/ Projects
1	Battleground Ave & Westridge Rd	5.878	0.03	53,435	Intersection Improvement Project
2	NC 68 Hwy & Triad Center Dr	4.680	0.04	65,201	Intersection Improvement Project
3	Bryan Blvd & Regional Rd	3.912	0.23	42,832	Regional Study in Progress
4	NC 68 & Pleasant Ridge Rd	3.537	0.39	65,500	Regional Study in Progress
5	NC 68 Hwy & Thorndike Rd	3.439	0.11	45,522	Regional Study in Progress
6	Pomona Dr & Spring Garden St	3.300	0.06	50,881	Project on Hold
7	Dudley St & Market St	3.203	0.03	51,517	Signal Modification
8	Green Valley Rd & Market St	2.916	0.03	28,954	No Project
9	Benjamin Pwy & Pembroke Rd	2.831	0.10	40,924	Corridor Improvement Project
10	Benjamin Pwy & Elam Ave	2.684	0.12	48,264	Corridor Improvement Project
11	Dolley Madison Rd & Friendly Ave	2.653	0.04	43,148	Possible ITS Project
12	Benjamin Pwy & Campus Dr	2.637	0.07	31,860	Remark for dual left turns
13	Fairfax Rd & Hilltop Rd	2.581	0.13	31,106	Improvements Underway
14	Aycock St & Benjamin Pwy & Westover Terr	2.570	0.07	43,224	No Project
15	Gallimore Dairy Rd & Market St	2.484	0.03	18,941	Future Project
16	Albert Pick Rd & Regional Rd	2.347	0.06	27,955	Regional Study in Progress
17	Pleasant Garden Rd & US 421 Hwy	2.296	0.05	36,976	Project on Hold
18	Wendover Ave EB Ramp & Westover Terr	2.260	0.04	33,619	No Project
19	Aycock St & Spring Garden St	2.253	0.05	62,265	Signal Modification
20	Benjamin Pwy & Cornwallis Dr	2.144	0.16	47,859	Corridor Improvement Project
21	Creek Ridge Rd & Randleman Rd	2.117	0.03	47,842	No Project
22	Friendly Ave & Jefferson Rd	2.115	0.06	41,952	No Project
23	Cone Blvd & Elm St	2.082	0.10	52,394	Project on Hold
24	Battleground Ave & Brassfield Rd	2.063	0.08	45,667	Intersection Improvement Project
25	Cornwallis & Elm St	2.000	0.03	38,394	Project on Hold

Source: Greensboro Transportation Dept., 2000. *All of these intersections are operating at a level of service F; LOS F is during AM & PM peak travel times (see glossary for definitions).

Table 9-7: Greensboro's Top Ten Congested City Thoroughfares*, 1989-1999

Thoroughfare	From:	To:	Length (mi)	1989 Vol- ume**	1999 Vol- ume**	V/C Ratio
Wendover Ave.	Bridford Pkwy.	I-40	0.63	21,700	58,390	1.36
NC 68	Wendover Ave.	Market St.	4.71	11,300	46,865	1.30
Airport Pkwy.	N.C. 68	Old Oak Ridge Rd.	2.42	8,791	35,550	1.10
Battleground Ave.	Wendover Ave.	Benjamin Pkwy.	0.53	21,700	45,700	1.40
Wendover Ave.	Guilford Coll. Rd.	Bridford Pkwy.	1.07	17,500	39,450	1.26
Wendover Ave.	I-40	Spring Garden St.	1.93	39,400	60,100	1.23
Battleground Ave.	New Garden Rd.	Westridge Rd.	0.94	24,100	43,000	1.35
Wendover Ave.	Battleground	Church St.	1.38	56,300	74,300	1.42
Aycock St.	Lee St.	Benjamin Pkwy.	1.30	16,300	34,000	1.14
Spring Garden St.	Wendover Ave.	Market St.	0.71	22,700	40,280	1.31

Source: Greensboro Transportation Dept., 2000. *LOS is F for all 10 during AM & PM peak travel times (see glossary for definitions). **Volume is cars per day.

Table 9-8: Top Congested Interstate Thoroughfares in Greensboro, 1989-1999

Thoroughfare	From:	To:	Length (mi)	1989 Volume*	1999 Volume*	V/C Ratio
I-40	Sandy Ridge Rd.	High Point Rd.	9.26	78,000	98,000	1.30
I-85	I-40	US-29	3.31	106,000	144,000	1.32

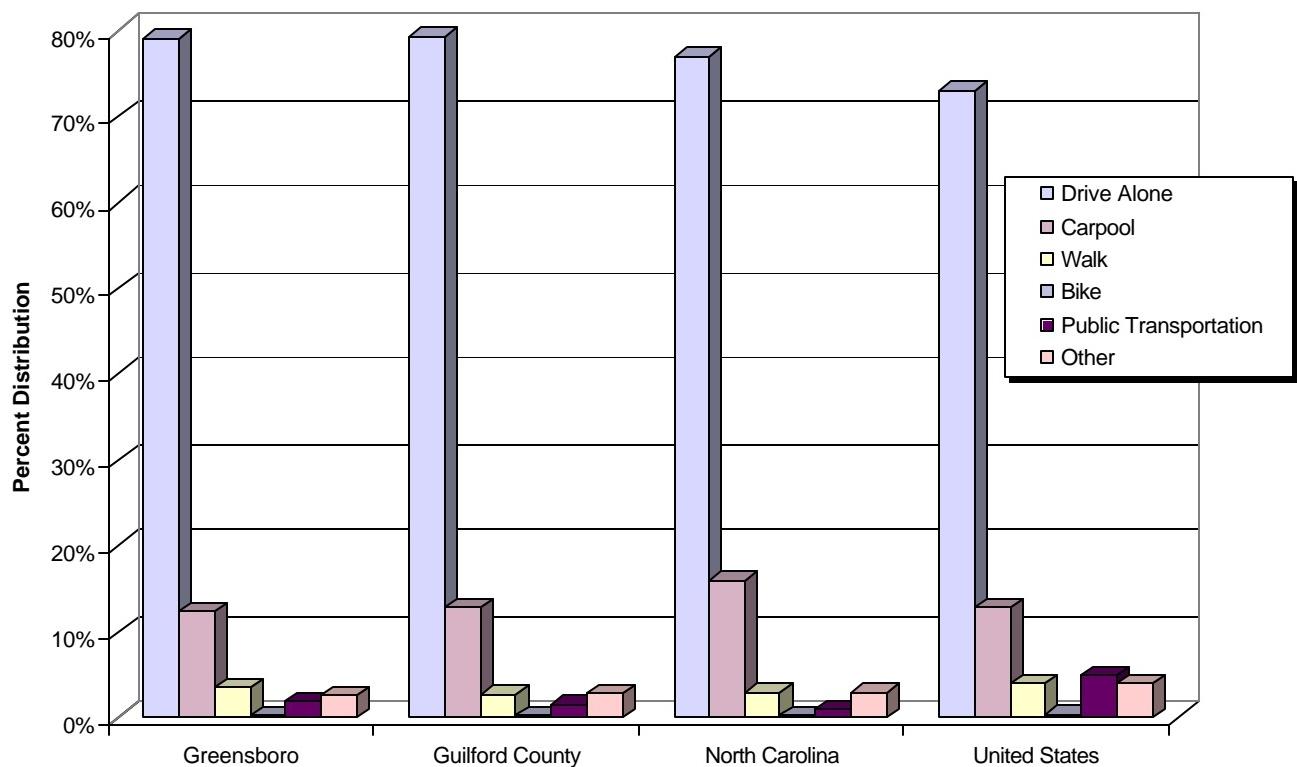
Source: Greensboro Transportation Dept., 2000. Note: LOS is F for all 10 during AM & PM peak travel times (see glossary for definitions). *Volume is cars per day.

Table 9-9: Transportation Mode Share Comparisons in Selected Areas, 1990

Area	Mode						Total
	Drive Alone	Carpool	Walk	Bike	Public Transit	Other	
Greensboro	79.1%	12.5%	3.6%	0.3%	1.9%	2.6%	100%
Guilford County	79.4%	13.0%	2.8%	0.3%	1.6%	2.9%	100%
North Carolina	77.0%	16.0%	3.0%	0.3%	1.0%	3.0%	100%
United States	73.0%	13.0%	4.0%	0.4%	5.0%	4.0%	100%

Source: US Census Bureau, 1990 Census of Population & Housing, Journey to Work.

Figure 9-4: Transportation Mode Share Comparisons in Selected Areas, 1990

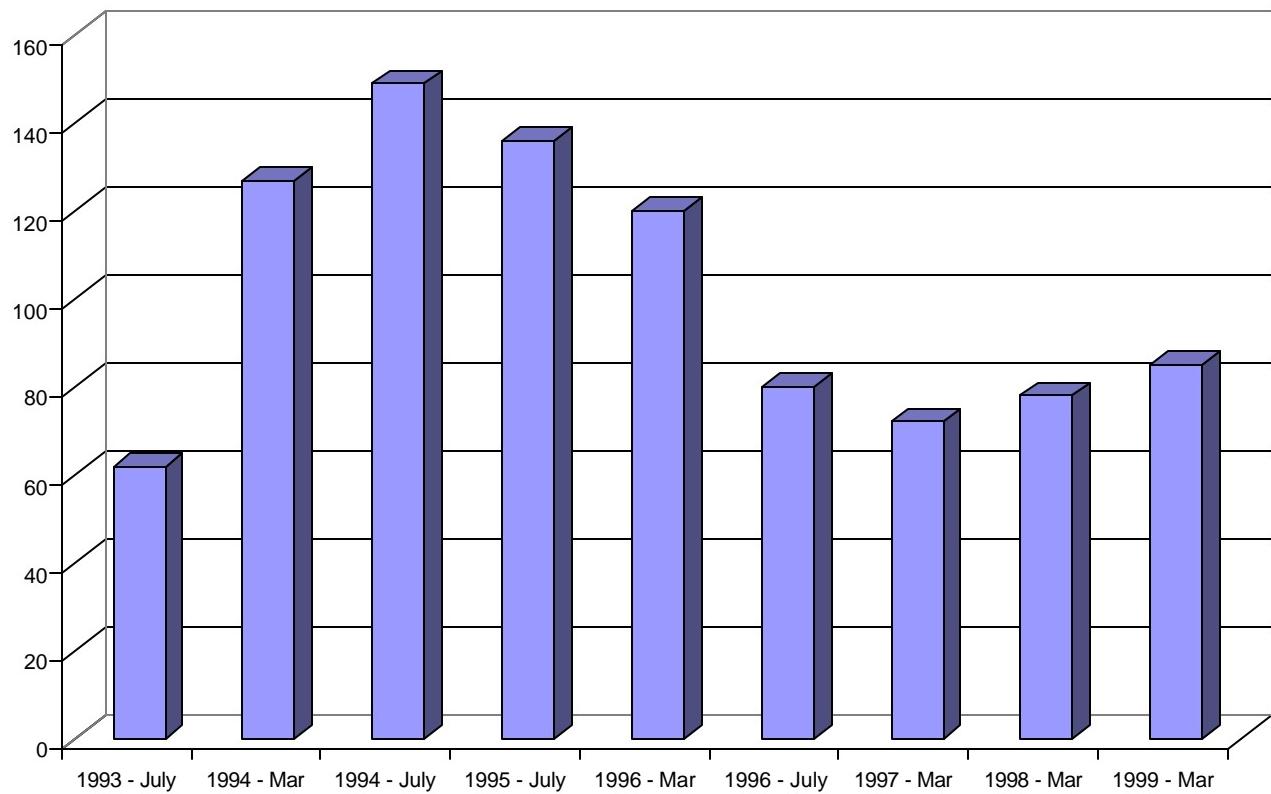


Source: US Census Bureau, 1990 Census of Population & Housing, Journey to Work.

Table 9-10: PTIA, Average Number of Flights Per Day, 1993-1999	
Date	Average Flights
1993 - July	62
1994 - Mar	127
1994 - July	149
1995 - July	136
1996 - Mar	120
1996 - July	80
1997 - Mar	72
1998 - Mar	78
1999 - Mar	85

Source: Piedmont Triad Council of Governments, 2001.

Figure 9-5: PTIA, Numbers of Flights, 1993-1999



Source: Piedmont Triad Council of Governments, 2001.

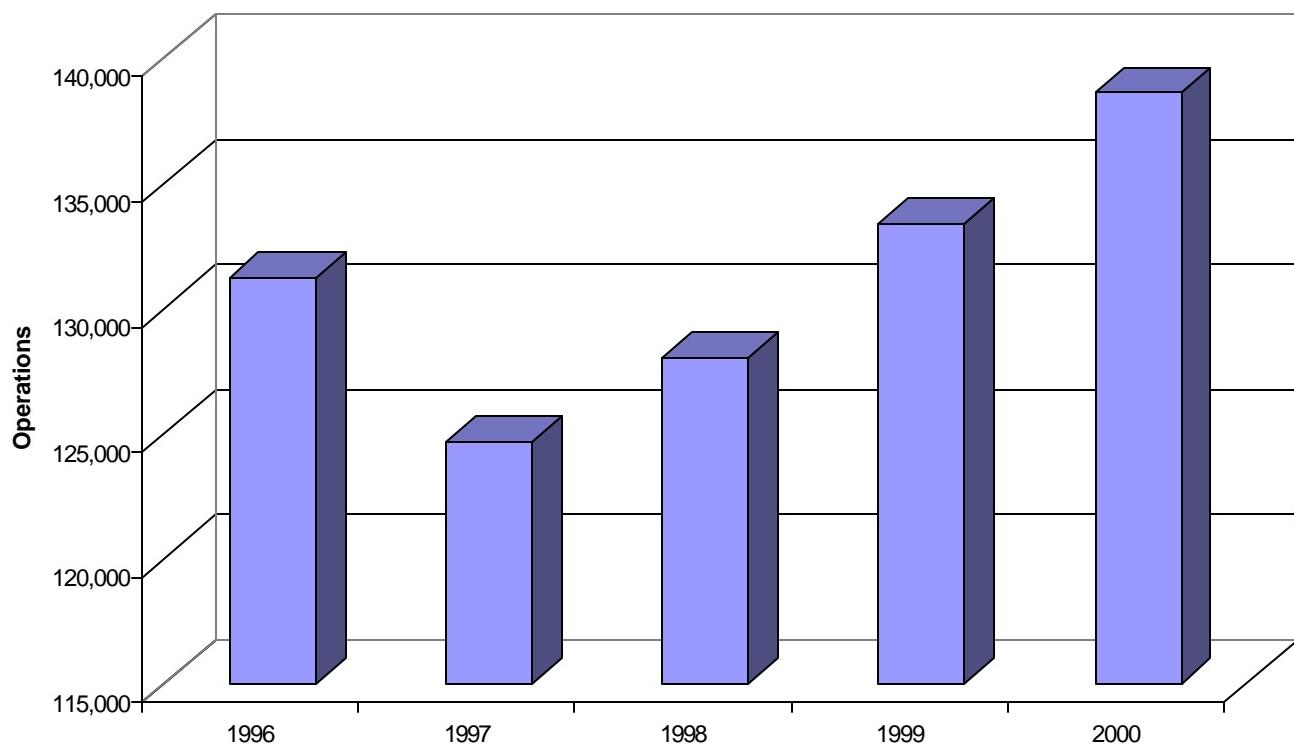
Table 9-11: Piedmont Triad International Airport Statistics, 1996-2000

Services	1996	1997	1998	1999	2000	1996-2000 Percent Growth
Aircraft Operations						
Total Aircraft Operations*	131,227	124,689	128,028	133,398	138,641	5.3%
Air Carrier Enplaned** Traffic						
Passengers (All Services)	1,299,502	1,119,987	1,304,978	1,351,622	1,396,766	7.0%
Total Cargo (lbs.)***	79,084,323	100,772,080	102,895,301	81,769,238	73,546,624	-7.5%

Source: Piedmont Triad Airport Authority, Statistical Data Report, 1996-2000. *Aircraft Operations - commercial air carrier, air taxi, general aviation & military. **Defined as Passenger; A.C.E.T. is counted for take-offs only.

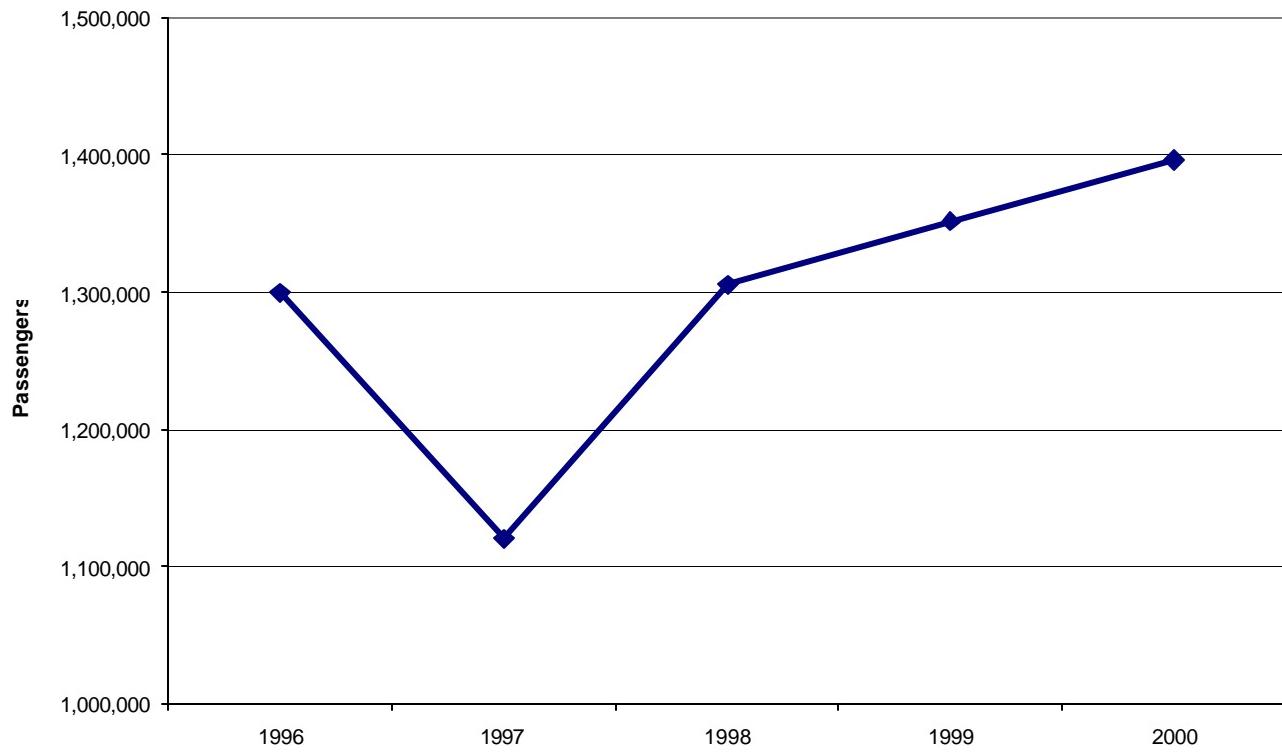
***Cargo - US mail & express/ freight. Note: the 1997 drop in Total Aircraft Operations is due to General Aviation (Local & Itinerant).

Figure 9-6: Piedmont Triad International Airport Total Aircraft Operations*, 1996-2000



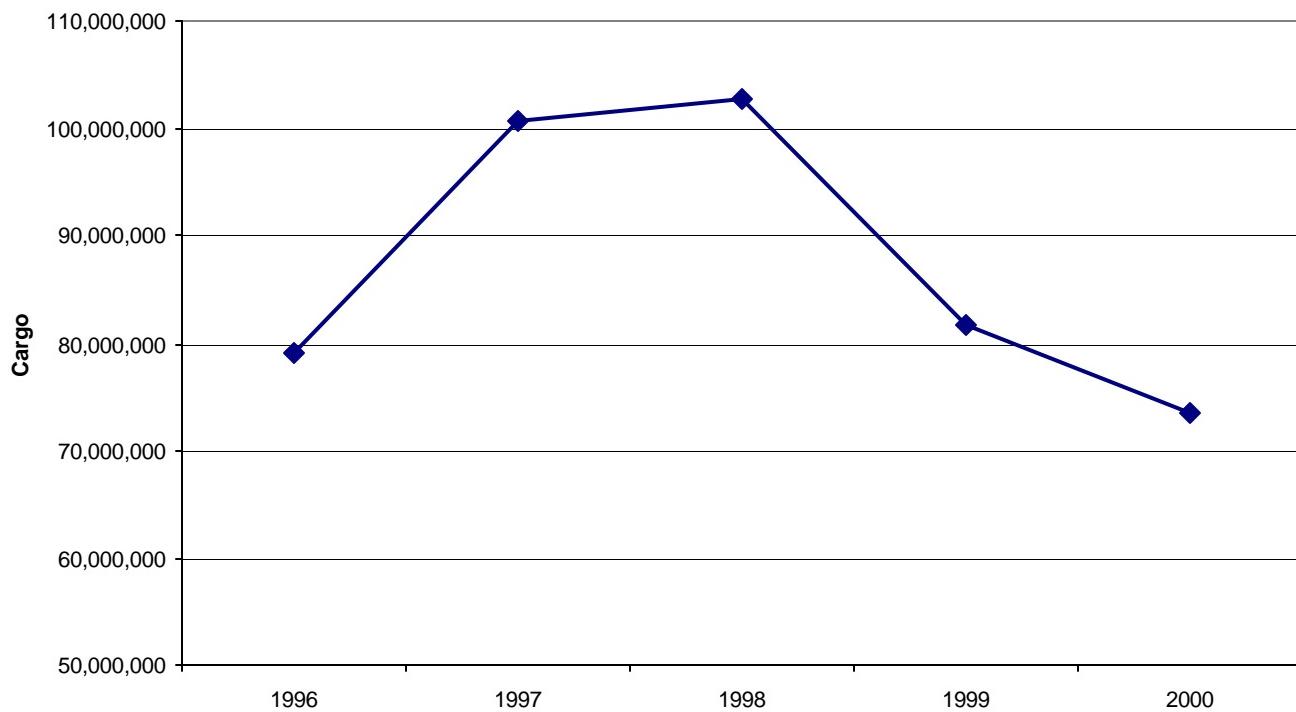
Source: Piedmont Triad Airport Authority, Statistical Data Report, 1996-2000. *Aircraft Operations - commercial air carrier, air taxi, general aviation & military. Note: the 1997 drop in Total Aircraft Operations is due to General Aviation (Local & Itinerant).

Figure 9-7: Piedmont Triad International Airport Passengers (All Services), 1996-2000



Source: Piedmont Triad Airport Authority, Statistical Data Report, 1996-2000.

Figure 9-8: Piedmont Triad International Airport Total Cargo (lbs.)*, 1996-2000**



Source: Piedmont Triad Airport Authority, Statistical Data Report, 1996-2000. ***Cargo - US mail & express/ freight.

Chapter 10

Solid Waste

SOLID WASTE: INTRODUCTION

The City of Greensboro provides weekly curbside solid waste, recycling, bulk trash, white goods, and yard waste collection services to nearly all single-family, housing units. In addition to the residential collection program, the city provides commercial garbage collection services to approximately 2,500 businesses, multi-family dwellings (apartments, town homes, and condominiums). The commercial recycling program provides collection services to more than 1,150 businesses. Private waste hauling companies provide collection services for waste not collected by the City, primarily commercial and industrial waste, private residential communities and waste outside the city limits of Greensboro.

In Guilford County, there are two permitted municipal solid waste disposal facilities; the Kersey Valley Landfill, which is located in the southwestern part of the County, and the White Street Landfill, which is located in the northeastern part of the County. The Kersey Valley Landfill is owned and operated by the City of High Point. The White Street Landfill is owned and operated by the City of Greensboro.

The White Street Landfill provides disposal services for municipal solid waste, land clearing and inert debris, and for construction and demolition waste. White Street is currently the only permitted construction and demolition waste site in the County. By contract with a private company, the City provides facilities for material recovery, yard waste processing, and household hazardous waste collection. The landfill and these facilities accept waste from private haulers and individuals from within Guilford County jurisdictional boundaries.

A landfill gas collection system is installed at the White Street Facility. Under contract with Duke Engineering and Services (DE&S), the City of Greensboro collects methane from the landfill that is sold to Cone Mills Corporation as a fuel to produce steam at its White Oak Plant. DE&S, in a joint venture with the City of Greensboro, is developing anaerobic fermentation composting capabilities at the White Street facility. Upon completion, the Compost Facility will handle approximately 30,000 tons of yard waste per year.

The White Street Landfill consists of approximately 900 acres, nearly all of which is owned by the City. Approximately 94 acres of the landfill site is owned by Guilford County and is leased to the City. Phase I of the landfill was closed in 1978. Phase II of the landfill was closed in December 1997 in accordance with state regulations. In May 1997, the City issued \$16 million in special obligation bonds to finance construction of the first two cells of Phase III of the landfill, of which the first cell was completed in 1997. Cell two, constructed in the fall of 2000, began accepting waste in June of 2001. Cell three will be constructed in 2003 and is scheduled to begin filling in 2004. The life expectancy for all three cells is estimated to be 9.75 years (1998-2008).

SOLID WASTE: SUMMARY HIGHLIGHTS

Landfilled and Managed Waste: Greensboro

LANDFILLED

Waste at the White Street Landfill includes waste from public and private haulers that serve

both Greensboro and Guilford County, and can include High Point.

Between FY 1997-1998 and FY 1999-2000, Greensboro accounted for an average of 85.8 percent of the waste deposited at the White Street Landfill. Of the waste generated in fiscal year 1999-2000, 90.3 percent was landfilled.

The amount of landfilled waste generated increased by 38.9 percent between FY 1997-1998 and FY 1999-2000. Construction and Demolition led with 378.1 percent, followed by Land Clearing and Debris at 27.6 percent, and Municipal Solid Waste at 5.4 percent.

Of the waste generated in fiscal year 1999-2000, 90.3 percent was landfilled and 9.7 percent was managed or kept out of the landfill, mainly through yard waste and recycling programs. The amount of landfilled waste has increased from 88.4 percent in 1997-1998 to 90.3 percent in 1999-2000. The majority of this was due to the significant increase in construction and demolition waste. The amount of solid waste actually decreased from 58.3 percent in FY 1997-1998 to 45.2 percent in FY 1999-2000. In FY 1999-2000, 5.2 percent of the city's waste was recycled, down from a high of 6.3 percent in 1998-1999.

MANAGED

Managed waste tonnage between FY 1997-1998 and FY 1999-2000 increased 14.4 percent overall. Recycled waste was up 25.2 percent, yard waste was up 4.5 percent, but there was a decrease in white goods of 8.9 percent.

SOURCES

Between FY 1997-1998 and FY 1999-2000, Greensboro accounted for an average of 85.9 percent of the waste deposited at the White Street Landfill. Between FY 1997-1998 and FY 1999-2000, total waste sources for Greensboro and Guilford County increased by 36 percent.

Waste Diversion Goals: Guilford County

Between FY 1994-1995 and FY 1999-2000 the percent of municipal solid waste tons diverted from the landfill have gone from a high of 15.09 percent in FY 1995-1996 to a low of 11.60 percent in FY 1998-1999. FY 1999-2000 showed an increase to 12.43 percent and estimates show the percentage should increase to an all-time high of 15.16 percent by FY 2009-2010.

The overall tons of managed waste that was diverted from the landfill in all of Guilford County increased by 4.7 percent between FY 1994-1995 and FY 1999-2000. It is estimated that the amount diverted will increase by another 40 percent by FY 2009-2010.

Between FY 1994-1995 and FY 1999-2000, the per capita municipal solid waste reduction for the entire County went from a high of 16.89 percent in FY 1995-1996 to a low of 8.78 percent in fiscal years 1998-1999 through 2000-2001. Estimates show that this percentage should increase to 10.81 percent by 2009-2010.

Table 10-1: White Street Landfill: Landfilled and Managed Waste 1997-1998 to 1999-2000

Waste Type	Waste Quantity in Tons (Public and Private)					
	1997-98	Percent	1998-99	Percent	1999-00	Percent
Landfilled						
Municipal Solid Waste	261,027	58.3%	250,375	56.5%	275,061	45.2%
Construction & Demolition Waste	29,319	6.6%	45,292	10.2%	140,184	23.0%
Land Clearing & Inert Debris	105,228	23.5%	89,517	20.2%	134,317	22.1%
Subtotal	395,574	88.4%	385,184	86.9%	549,562	90.3%
Managed, not Landfilled*						
Recycled	25,188	5.6%	27,746	6.3%	31,538	5.2%
Yardwaste	25,845	5.8%	29,604	6.7%	27,001	4.4%
White Goods	741	0.2%	652	0.1%	675	0.1%
Subtotal	51,774	11.6%	58,002	13.1%	59,214	9.7%
TOTAL	447,348	100.0%	443,186	100.0%	608,776	100.0%

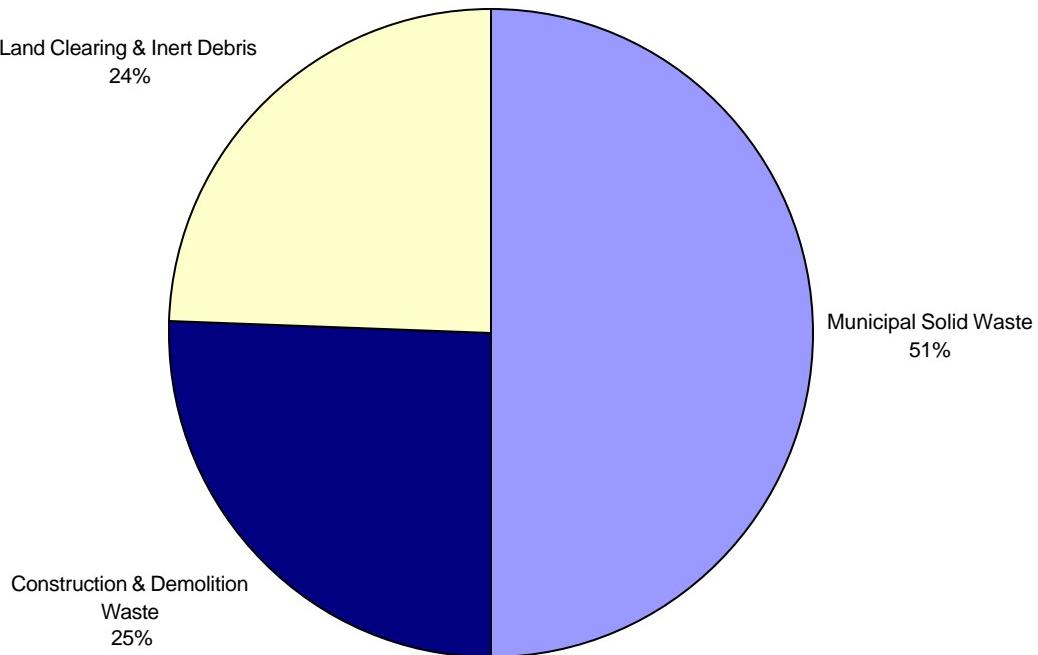
Source: City of Greensboro Solid Waste Annual Report, June 30, 1999 and June 30, 2000. *Collected by the City of Greensboro, but not disposed of at the White Street Landfill.

Table 10-2: Sources of City of Greensboro and Guilford County Waste

Waste Source	1997-98	Percent	1998-99	Percent	1999-00	Percent
Greensboro	382,354	85.5%	382,709	85.8%	528,795	86.5%
Guilford County	64,994	14.5%	60,477	14.2%	79,981	13.5%
Total	447,348	100.0%	443,186	100.0%	608,776	100.0%

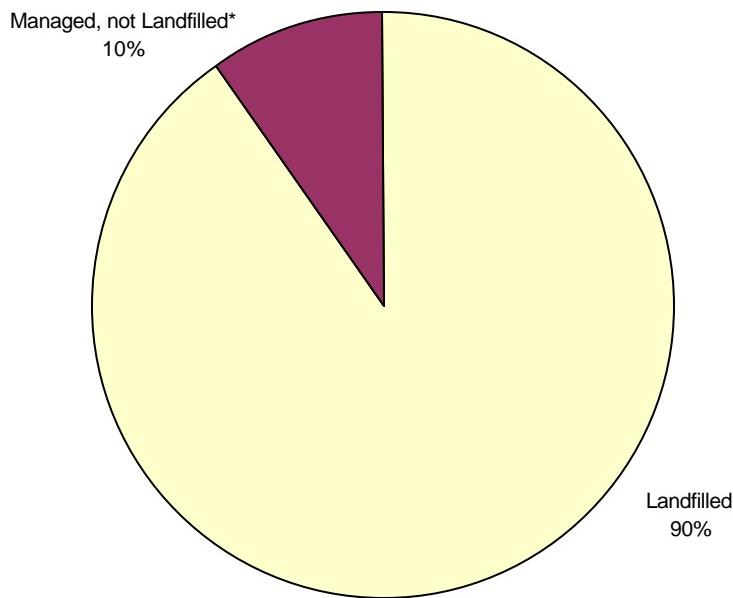
Source: SW Annual Report FY 99-00 and FY 98-99, 2000.

Figure 10-1: White Street Landfill: Landfilled Waste, 1999-2000



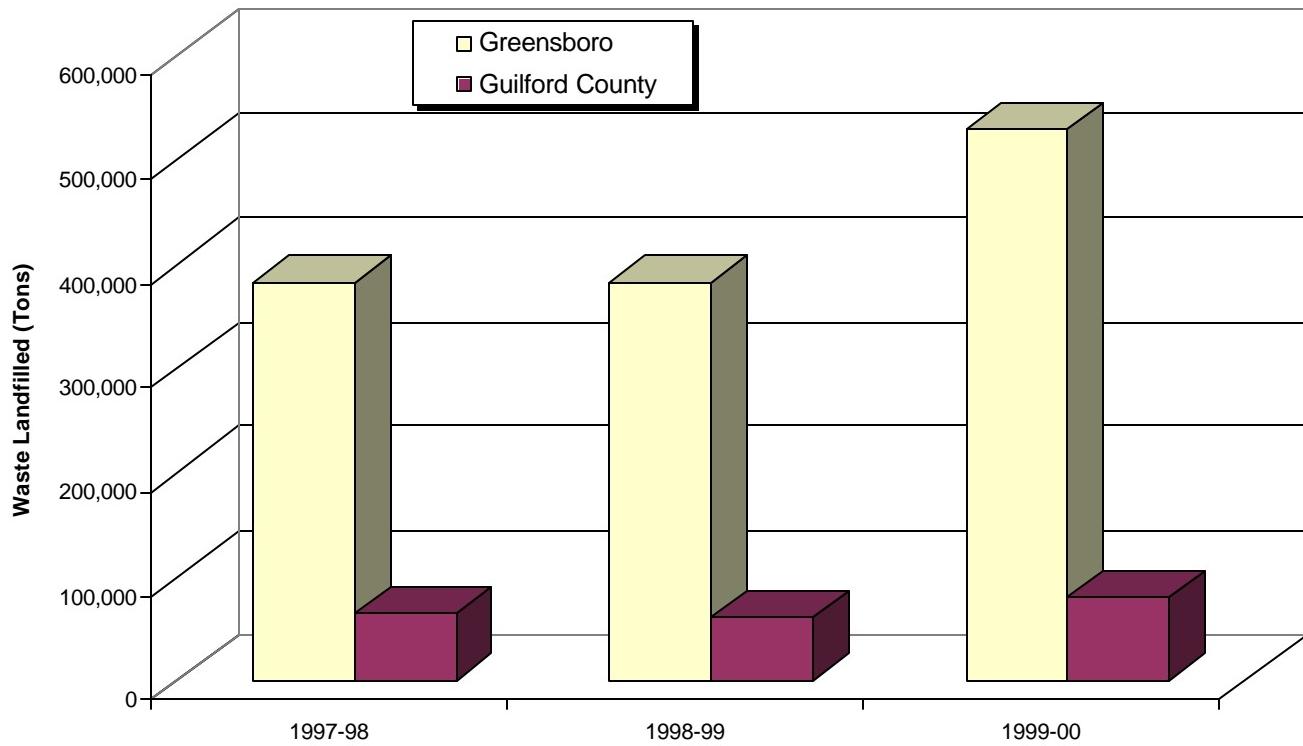
Source: City of Greensboro Solid Waste Annual Report, June 30, 1999 and June 30, 2000.

Figure 10-2: White Street Landfill, Landfilled vs. Managed Waste, 1997-2000



Source: City of Greensboro Solid Waste Annual Report, June 30, 1999 and June 30, 2000. *Collected by the City of Greensboro, but not disposed of at the White Street Landfill.

Figure 10-3: White Street Landfill: Landfilled Waste According to Source by Fiscal Year, 1997-2000



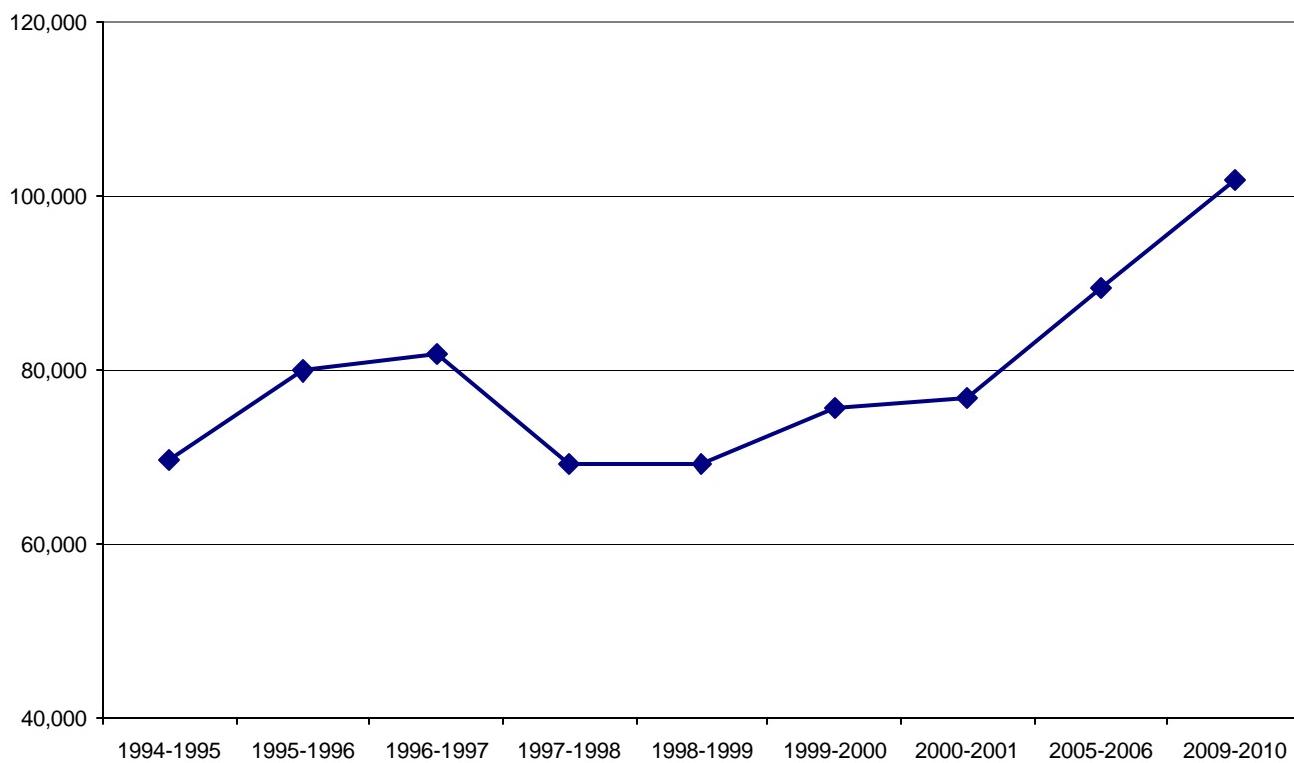
Source: SW Annual Report FY 99-00 and FY 98-99, 2000.

Table 2: Guilford County Tons Diverted by Material Type* and Future Diversion Estimates, 1994-2010

Year	Tires	White Goods	Household Hazardous Waste	Glass/ Metal/ Paper/ Plastic	Yard Waste	Total Tons Per Year
1994-1995	5,503	728	91	40,323	22,923	69,568
1995-1996	5,435	1,100	150	34,579	38,708	79,972
1996-1997	6,209	1,200	153	31,561	42,643	81,766
1997-1998	6,300	1,662	188	25,335	35,833	69,318
1998-1999	7,031	1,310	230	32,810	27,870	69,251
1999-2000	7,650	1,355	260	32,922	33,595	75,782
2000-2001	8,250	1,400	290	33,000	34,000	76,940
2005-2006	11,250	1,625	440	38,000	38,000	89,315
2009-2010	13,650	1,805	560	43,000	43,000	102,015

Source: Guilford County Solid Waste Management Plan, Three-Year Update, May 2000. *Managed.

Figure 10-4: Guilford County Tons Diverted Per Year, 1994-2010



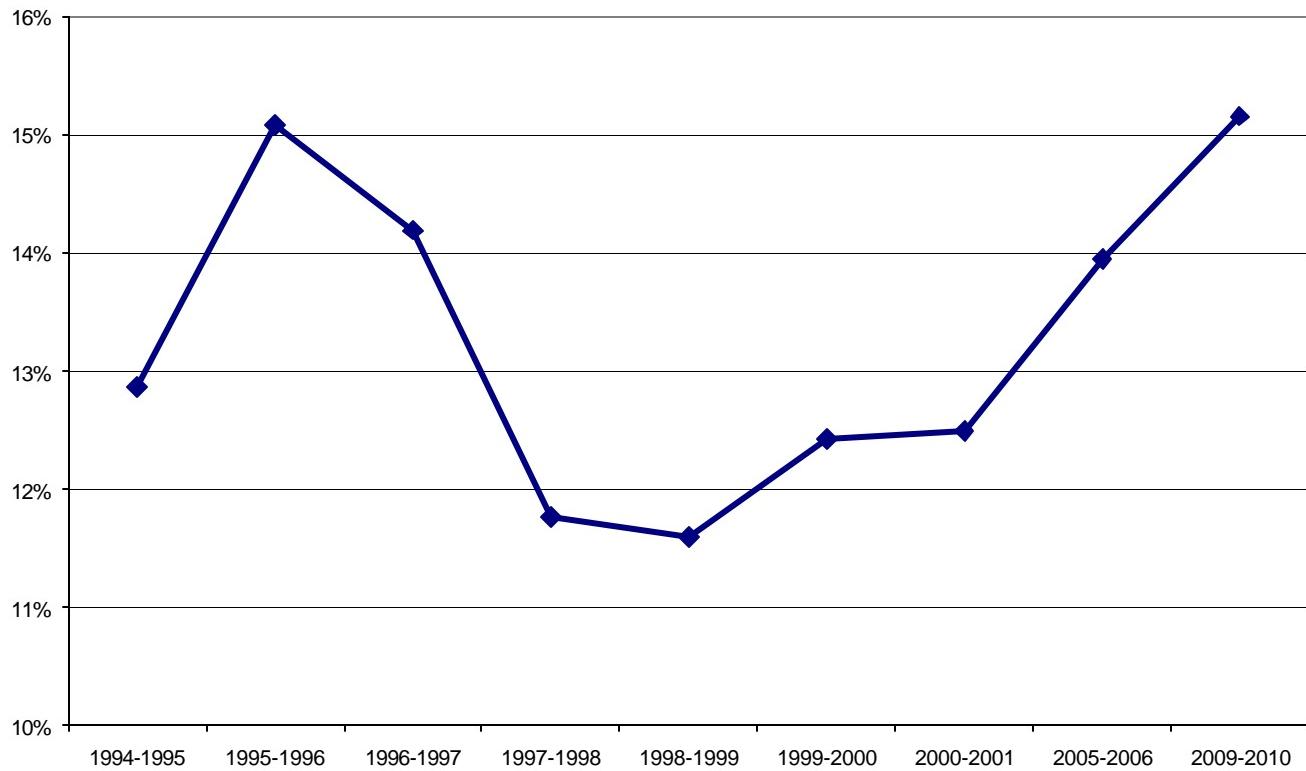
Source: Guilford County Solid Waste Management Plan, Three-Year Update, May 2000.

Table 10-4: Guilford County Diversion Rates and Future Diversion Estimates, 1994-2010

Year	Municipal Solid Waste Tons Per Year	Tons Per Year Diverted	Total Tons Per Year	Percent Diver-sion
1994-1995	480,845	69,568	540,413	12.87%
1995-1996	449,957	79,972	529,929	15.09%
1996-1997	494,570	81,766	576,336	14.19%
1997-1998	519,485	69,318	588,803	11.77%
1998-1999	527,717	69,251	596,968	11.60%
1999-2000	533,983	75,782	609,765	12.43%
2000-2001	539,105	76,940	616,045	12.49%
2005-2006	550,865	89,315	640,180	13.95%
2009-2010	570,809	102,015	672,824	15.16%

Source: Guilford County Solid Waste Management Plan, Three-Year Update, May 2000.

Figure 10-5: Guilford County Percent Diversion Rates and Future Diversion Estimates, 1994-2010



Source: Guilford County Solid Waste Management Plan, Three-Year Update, May 2000.

Figure 10-6: Guilford County Diversion Rates and Future Diversion Estimates, 1994-2010

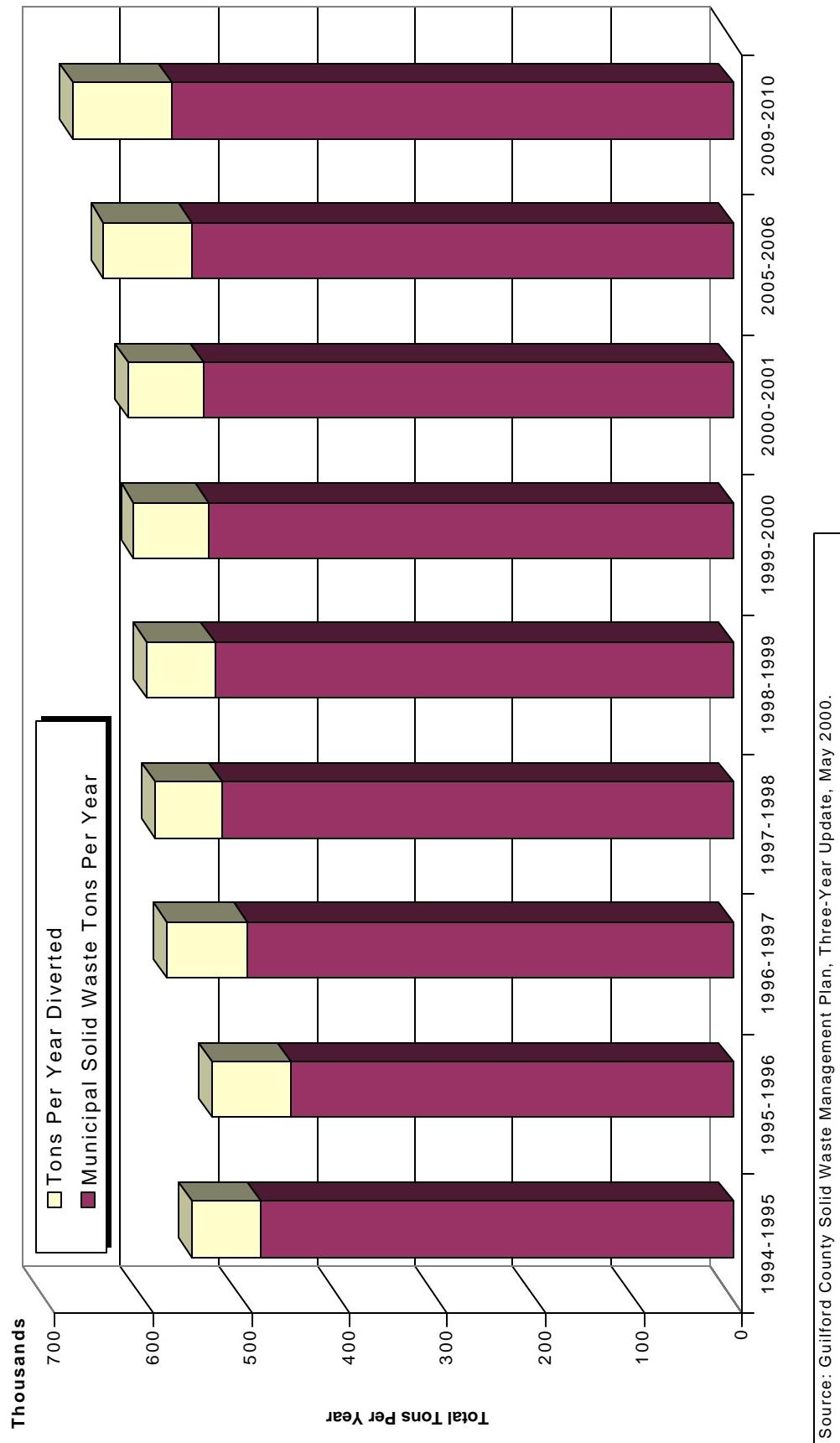
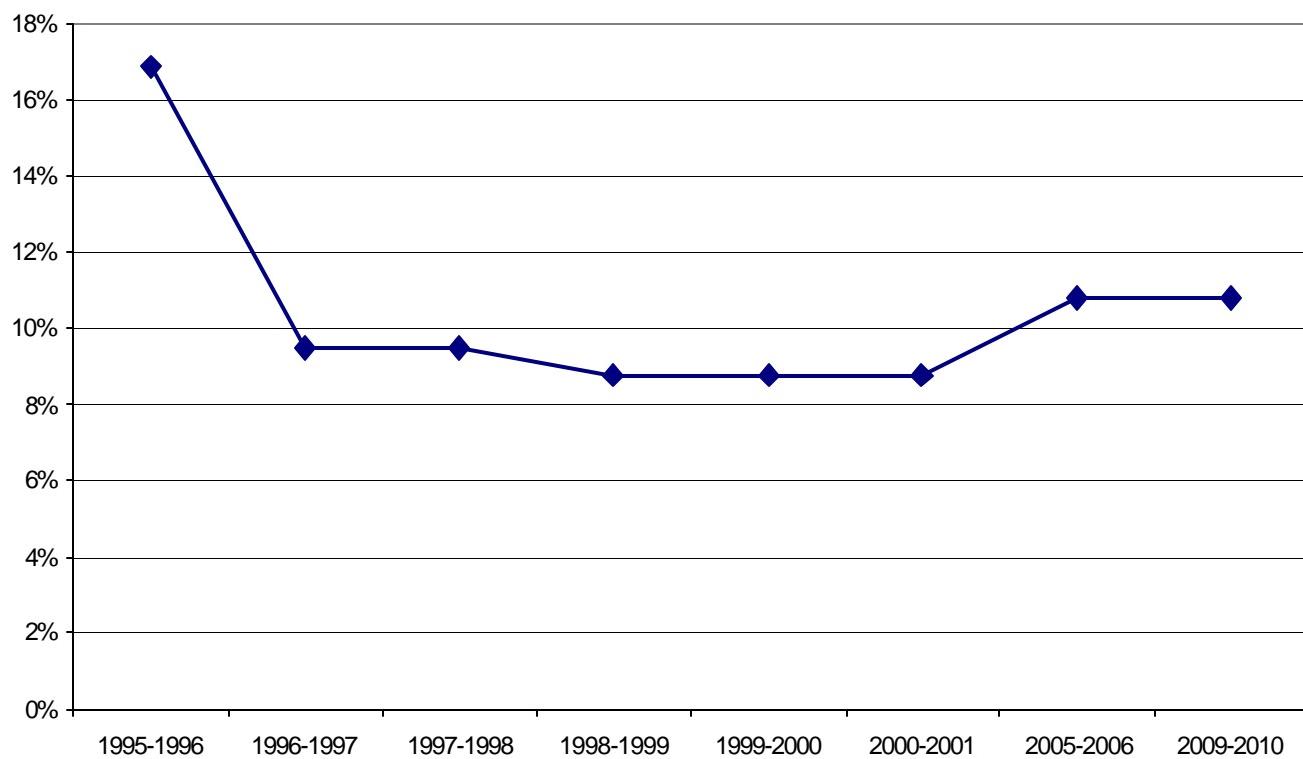


Table 10-5: Guilford County Annual Per Capita Waste Reduction and Goals, 1991-2010

Year	Service Area Population	Total Tons Municipal Solid Waste	Per Capita Tons Per Year	Per Capita Percent Reduction
1994-1995	362,710	470,845	1.30	NA
1995-1996	365,768	449,957	1.23	16.89%
1996-1997	368,826	494,570	1.34	9.46%
1997-1998	385,852	519,485	1.34	9.46%
1998-1999	391,508	527,717	1.35	8.78%
1999-2000	395,543	533,983	1.35	8.78%
2000-2001	399,337	539,105	1.35	8.78%
2005-2006	417,322	550,865	1.32	10.81%
2009-2010	432,431	570,809	1.32	10.81%

Source: Guilford County Solid Waste Management Plan, Three-Year Update, May 2000.

Figure 10-7: Guilford County Annual Per Capita Waste Reduction and Goals, 1991-2010



Source: Guilford County Solid Waste Management Plan, Three-Year Update, May 2000.

Chapter 11

Police

POLICE: INTRODUCTION

The Greensboro Police Department adheres to principles of community policing, highly valuing active community participation, partnerships and innovation. The Police Department has recently completed a five-year Strategic Plan designed to make Greensboro the safest city in America. The Department is composed of three operational bureaus and one support bureau. Divisions within the four bureaus provide law enforcement and prevention services, investigations of major crimes and administrative and support functions. Principal priorities in the Strategic Plan include:

- Handling emergencies quickly;
- Fighting crime effectively;
- Providing high visibility patrol;
- Partnering in problem solving;
- Creating an atmosphere of fairness and trust; and
- Focusing on prevention.

The location of Police Service Centers in each police district is a key strategy in providing services to each neighborhood. The downtown police station is located at 300 West Washington Street. The first Service Center opened on Maple Street in northeast Greensboro in April 2000. In November of 2000, citizens voted to approve a bond referendum for two additional centers. Proposed locations for those centers are 2602 S. Elm-Eugene Street (southeast Greensboro) and a yet undetermined location in Police District 3 (northwest Greensboro).

Another critical component of the strategic plan is to accept accountability for crime prevention and the reduction of crime overall. To foster this accountability, police routinely review crime statistics that then guide decisions about deployment of resources. This chapter contains statistics for drug arrests, traffic accidents and arrests, violent crimes, property crimes and index crimes. Data are provided for the last ten years.

POLICE: SUMMARY HIGHLIGHTS

Greensboro Crime Statistics

In 2000, the police department handled 234,956 service calls in 2000. The volume is projected to increase to 341,161 service calls by 2025.

In 2000, drug arrests increased to their highest level, 4,679. This was a 133.6 percent increase between 1990 and 2000. The lowest number of drug arrests occurred in 1991, when 1,789 arrests were made. DWI arrests have declined steadily between 1990 and 2000, from 1,700 to 955, respectively.

From 1990-2000, the lowest number of violent crimes occurred in 1990 (1,822) and the highest number in 1993 (2,224). Total violent crimes for 2000 were 1,976. During this ten-year period, total property crimes varied between a low of 12,816 and a high of 15,921.

Total property crimes in 2000 totaled 13,041.

The Total Index Crimes, a combination of total violent crimes and total property crimes, increased by 2.6 percent between 1990 and 2000 in Greensboro.

Crime Statistics for Selected Cities

In 1999, Charlotte led in the number of total index crimes at 53,413 (8,138 violent crimes and 45,275 property crimes), while Greensboro ranked fifth as compared to North Carolina cities and nearly equaled total crimes in Montgomery, AL.

Greensboro Police Staffing

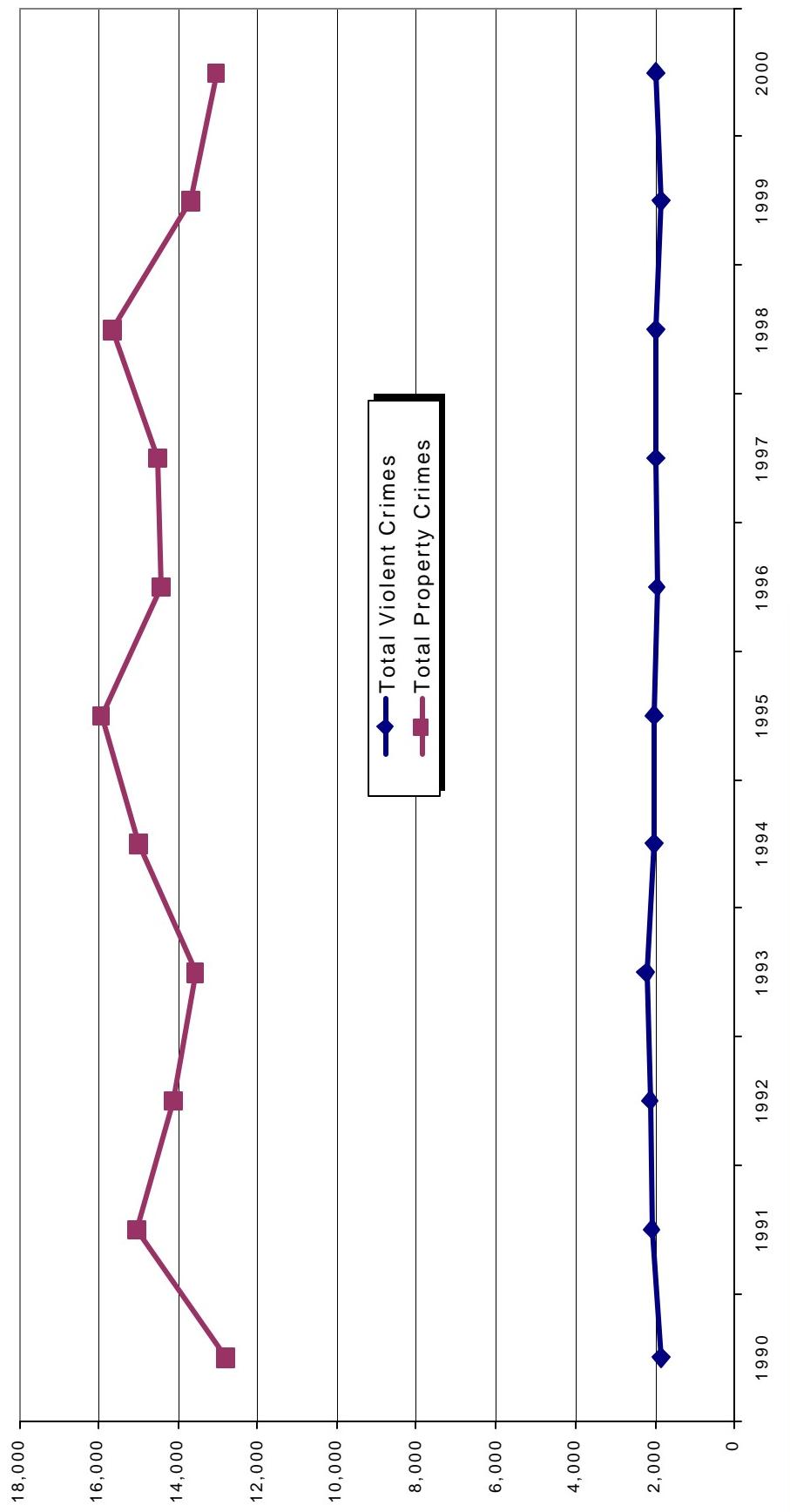
In 2000, the Police Department had a total of 657 employees. Total staff is projected to increase to 1,275 by 2025.

Table 11-1: Greensboro Crime Statistics, 1990-2000

	Number of Crimes by Year							Percent Change, 1990-2000			
Incidents	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Arson	NA	NA	NA	96	125	133	79	87	90	68	73
DWI Arrests	1,700	1,630	1,388	1,214	1,180	1,007	1,070	1,033	1,005	1,006	955
Traffic Accidents	9,083	8,777	9,195	9,637	10,905	11,215	10,775	9,372	9,221	9,658	9,517
Traffic Accident Fatalities	11	15	15	19	25	18	24	22	32	22	29
Traffic Arrests	42,524	41,713	35,870	30,196	30,828	28,888	38,111	39,134	33,000	36,084	36,646
Drug Arrests	2,003	1,789	1,974	2,143	2,842	3,869	4,568	4,656	4,620	4,342	4,679
Violent Crimes											
Homicide	21	36	23	28	20	35	23	34	21	20	21
Rape	117	111	108	100	98	95	113	112	112	130	173
Robbery	563	706	797	771	767	782	709	782	833	758	893
Aggravated Assault	1,121	1,219	1,194	1,325	1,130	1,111	1,103	1,067	1,034	938	889
Total Violent Crimes	1,822	2,072	2,122	2,224	2,015	2,023	1,948	1,995	2,000	1,846	1,976
Property Crimes											
Burglary	2,837	3,410	3,341	3,169	3,244	3,674	3,227	3,169	3,735	3,197	2,964
Larceny	9,201	10,815	10,121	9,646	10,787	11,064	10,177	10,243	10,594	9,184	8,999
Auto Theft	778	820	653	740	959	1,183	1,026	1,102	1,321	1,298	1,078
Total Property Crimes	12,816	15,045	14,115	13,555	14,990	15,921	14,430	14,514	15,650	13,679	13,041
Total Index Crimes	14,638	17,117	16,237	15,779	17,005	17,944	16,378	16,509	17,650	15,525	15,017

Source: Greensboro Police Dept. & the NC Dept. of Justice, Crime in NC, 1993-2000. 2001. Note: Percent Change for Arson category is calculated from 1993-2000.

Figure 11-1: Greensboro Crime Statistics, 1990-2000



Source: Greensboro Police Dept. & the NC Dept. of Justice, Crime in NC, 1993-2000. 2001.

Figure 11-2: Greensboro Total Index Crimes Reported, 1990-2000

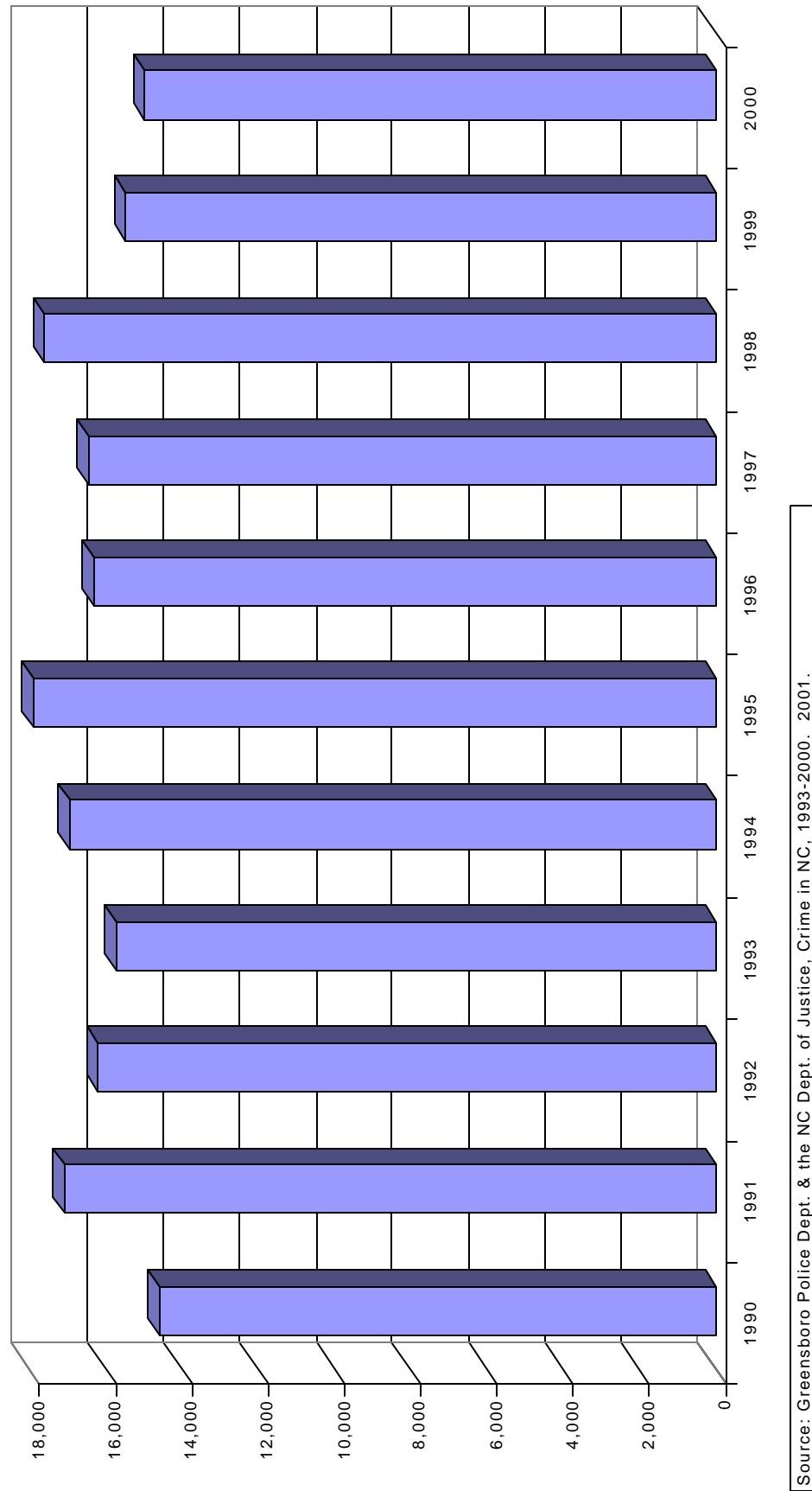
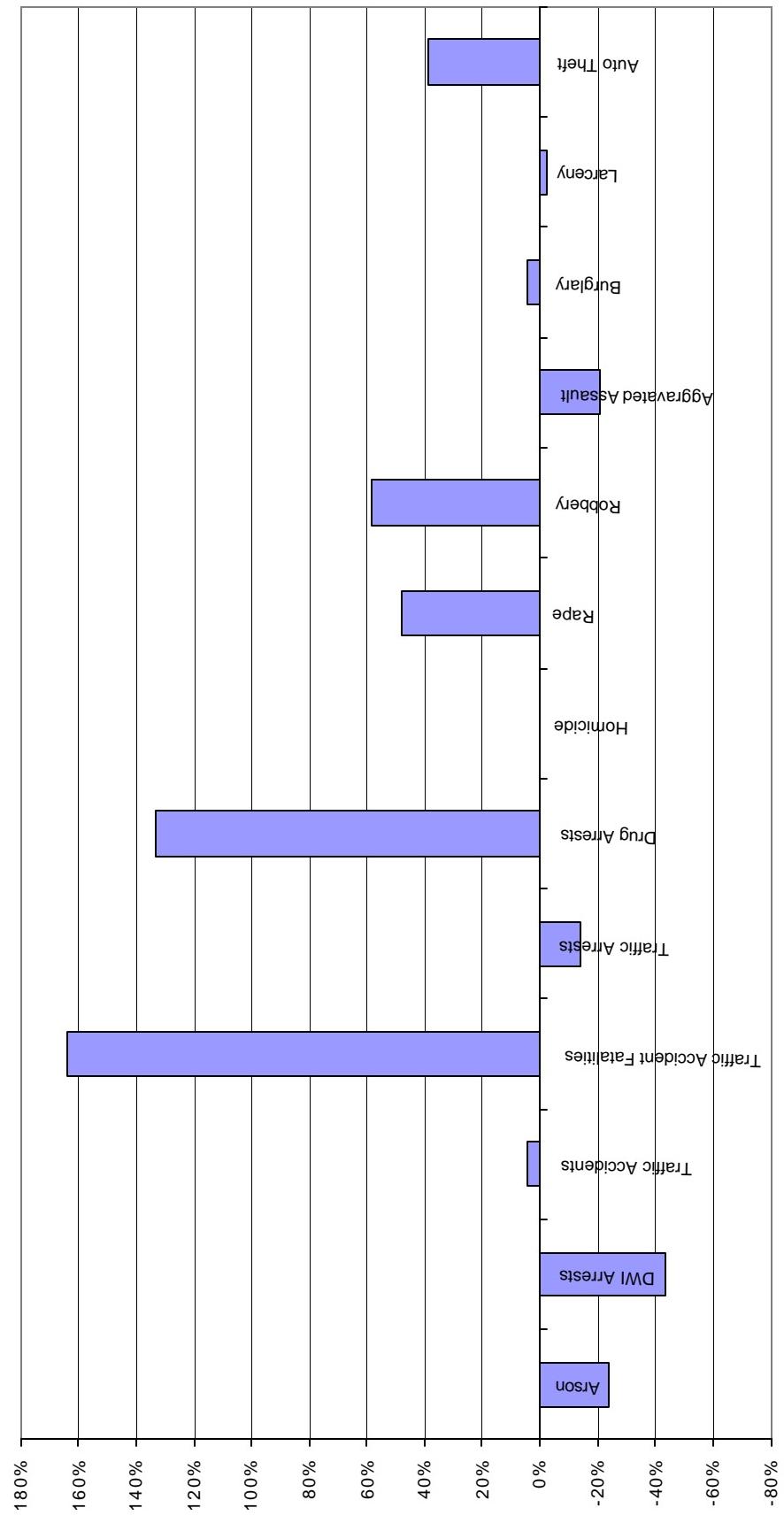


Figure 11-3: Greensboro Crime Statistics Percent Change, 1990-2000



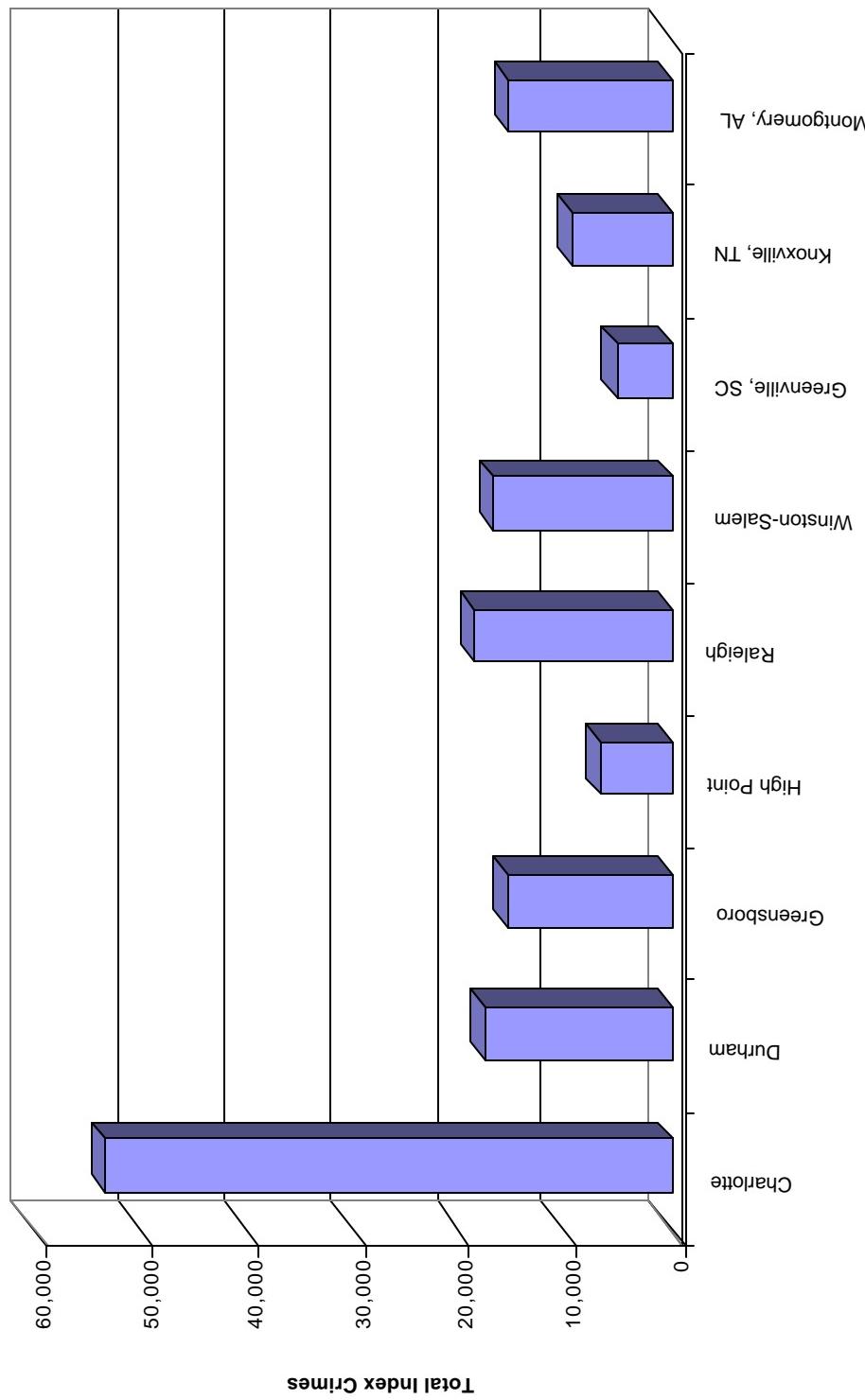
Source: Greensboro Police Dept. & the NC Dept. of Justice, Crime in NC, 1993-2000. 2001. Note: Percent Change for Arson category is calculated from

Table 11-2: Crime Statistics for Selected Municipalities, 1999

Incidents	NC Municipalities					Out-of-State Municipalities			
	Charlotte	Durham	Greensboro	High Point	Raleigh	Winston-Salem	Greenville, SC	Knoxville, TN	Montgomery, AL
Violent Crimes									
Homicide	84	14	20	4	16	17	3	N/A	26
Rape	262	80	130	37	92	112	19	N/A	120
Robbery	2,517	1,103	758	261	736	634	162	N/A	591
Aggravated Assault	5,275	816	938	514	1,189	1,450	311	N/A	846
Total Violent Crimes	8,138	2,013	1,846	816	2,033	2,213	495	1,392	1,583
Property Crimes									
Burglary	10,314	4,144	3,197	1,636	3,465	3,638	1,148	N/A	3,165
Larceny	30,116	9,895	9,184	3,886	11,864	9,921	3,423	N/A	9,304
Auto Theft	4,845	1,654	1,298	417	1,336	1,122	324	N/A	1,400
Total Property Crimes	45,275	15,693	13,679	5,939	16,665	14,681	4,895	8,077	13,869
Total Index Crimes	53,413	17,706	15,525	6,755	18,698	16,894	5,390	9,469	15,452

Source: Greensboro Police Dept., 2000, & Alabama Criminal Justice Information Center, Crime in AL, 2000.

Figure 11-4: Crime Statistics for Selected Municipalities, 1999



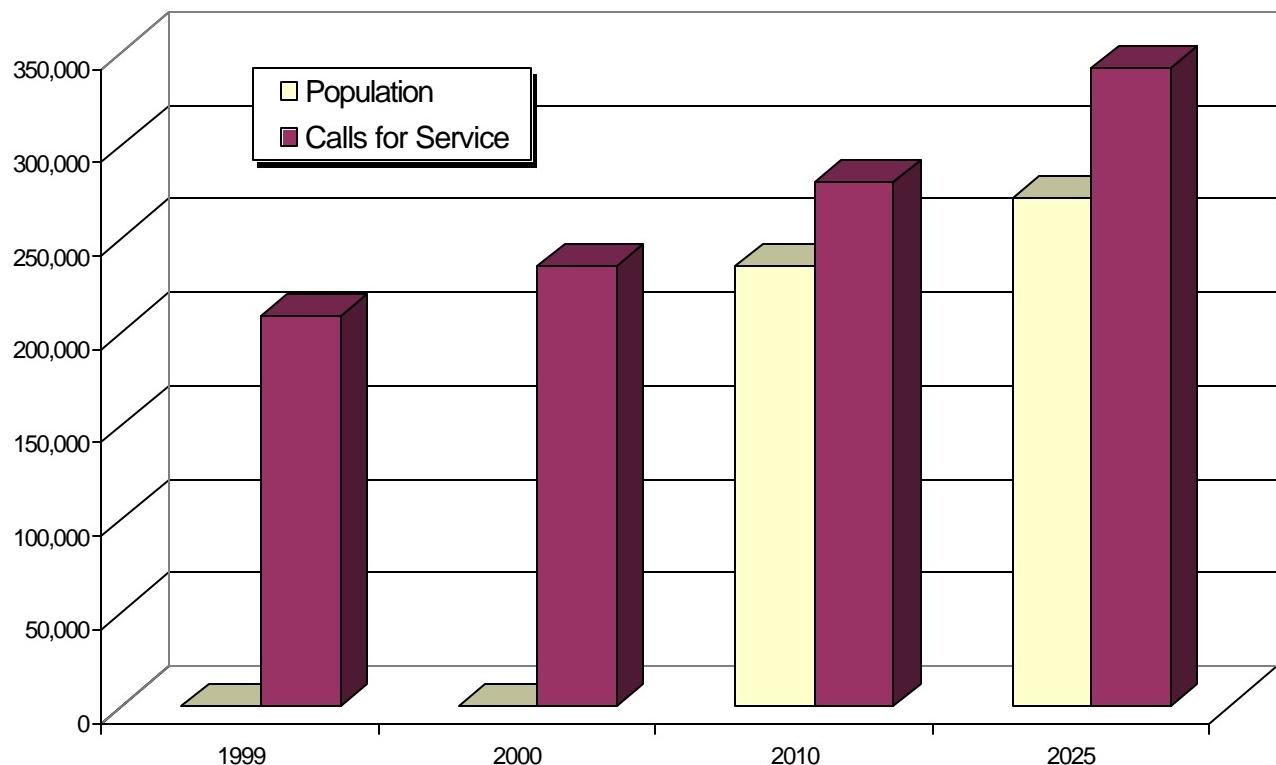
Source: Greensboro Police Dept. & Alabama Criminal Justice Information Center, Crime in AL, 1999.

Table 11-3: Greensboro Police Staffing and Equipment Estimates and Projections, 1999-2025

Year	Population	Calls for Service	Total Staff	Vehicles
1999	*208,887	208,771	656	329
2000	**223,891	234,956	675	338
2010	235,308	280,002	915	378
2025	271,190	341,161	1,275	478

Source: Greensboro Police Dept., 2000. *Greensboro Planning Dept. estimate; **US Census Bureau, 2000 Population & Housing.

Figure 11-5: Greensboro Population vs. Calls for Service to Police Dept., 2000



Source: Greensboro Police Dept., 2000. *Greensboro Planning Dept. estimate; **US Census Bureau, 2000 Population & Housing.

Chapter 12

Fire

FIRE: INTRODUCTION

The National Insurance Services Office (ISO) rates communities and their available resources for responding to and controlling fires. Typical rating factors include response time, staffing and equipment availability, building code requirements, and inspection procedures. Protection risks are mainly determined by a city's development patterns, population density, building density, and special hazards.

The ISO uses a scale of 1 (best rating) to 10 (no protection available) to evaluate communities. These ratings are used by the North Carolina rating bureau and other such agencies to establish fire insurance rates. The Greensboro Fire Department has maintained a Class 1 rating since 1991 and is the only fire department in North Carolina and one of only thirty in the nation to have a Class 1 designation.

The Greensboro Fire Department has three Divisions: Administrative Services, Emergency Services, and Resource Management. The Department operates 16 stations and there are a total of 395 staff members. The Department provides the following major services: inspections, fire and life safety education, fire suppression, medical, HAZMAT, and technical rescue. Capital Improvement Plans include replacing three stations and building five new stations. Seventy percent of Greensboro's population lives within 1.5 miles of a fire station. Each station has a distribution average of 6.9 square miles each.

Principal information in this chapter includes information on personnel, capital facilities, apparatus and equipment, selected factors related to level of service, annual departmental statistics, planned capital improvements, and selected comparison factors with other cities.

FIRE: SUMMARY HIGHLIGHTS

Personnel/ Equipment

The Greensboro Fire Department has three Divisions: Administrative Services, Emergency Services, and Resource Management. The department operates 16 stations, with 16 fire engines, and a total of 395 staff members.

Department Statistics

Between 1993 and 1999, total emergency responses increased by 65.1 percent.

From 1993-1999, average response time per call increased from 4.4 minutes to 5.29 minutes. During the same period, average response time for emergency medical calls (Emergency Medical Services, or EMS) decreased from 5.17 minutes to 5.11 minutes.

Between 1993 and 1998, the average response time for calls decreased by 15.9 percent. There was a dramatic increase of 43 percent between 1998 and 1999, due mainly to the required change in calculating response times. Starting in 1999, response times were calc u-

lated from the time the incident was reported to the time the fire apparatus was on the scene. Prior to 1999, response times were calculated from time of dispatch to on-scene. The same holds true for EMS calls.

Greensboro has retained its Class 1 Insurance Services Office (ISO) rating since earning it in 1991. Greensboro is the only city of both North Carolina and out-of-state comparison cities to maintain that rating, and one out of 30 in the nation. An ISO rating is a value from 1 to 10, based on a city's fire protection capabilities. A rating of 1-4 is good, 5-8 is average, 9 is marginal and 10 is unprotected.

Firefighter Comparison in Selected Municipalities

In 1999, Greensboro had the highest resident/ fighter ratio of North Carolina cities, 826, while Greenville, SC had the lowest ratio of both North Carolina and out-of-state cities, 423.

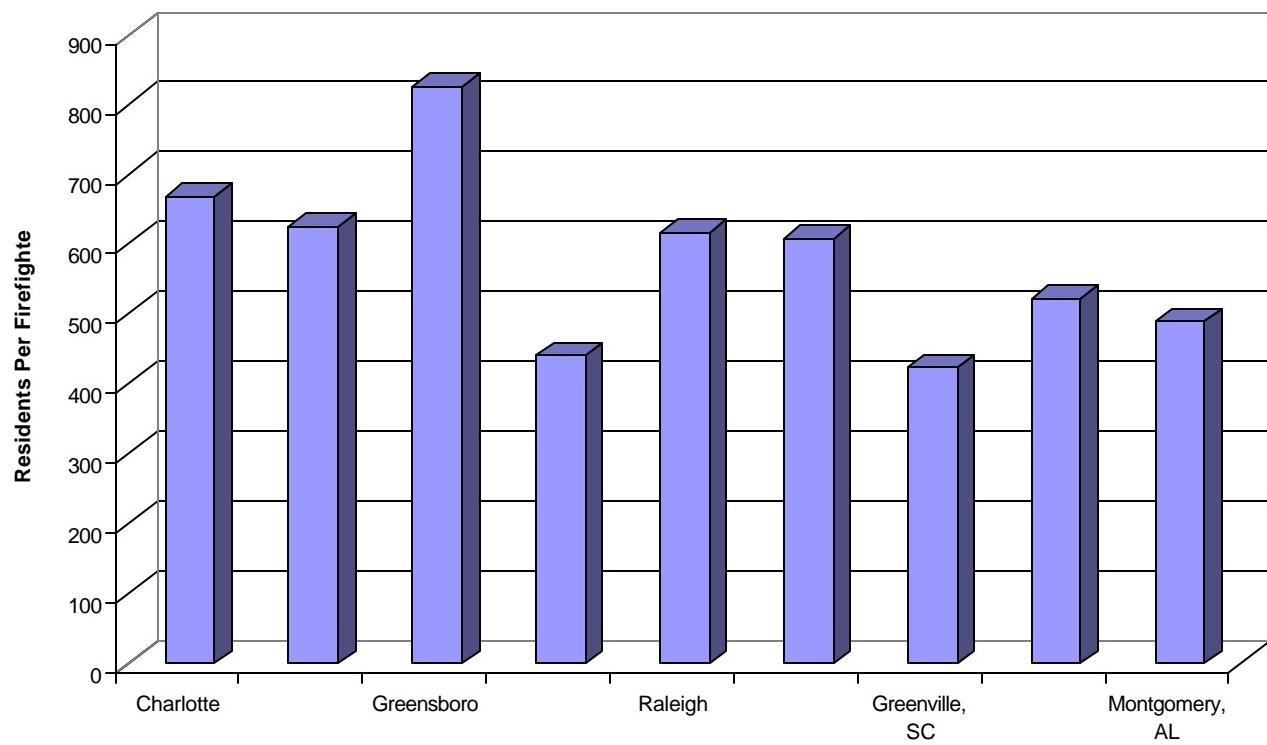
Greensboro has the highest resident-to-firefighter ratio of all the comparison cities. The average of fire calls per thousand population for all of the comparison cities was 79; Greensboro had 84.7.

Table 12-1: Firefighter Comparison in Selected Municipalities, 1999

NC Municipalities	Population	Area (Square Mile)	Firefighters	Residents/Firefighter	Stations	Fire Calls	Fire Calls Per 1000 Population	ISO Rating
Charlotte	540,000	240	807	669	33	77,000	142.6	3
Durham	172,000	92	275	625	12	14,545	84.6	3
Greensboro	208,887	109	253	826	16	17,696	84.7	1
High Point	79,394	50	180	441	11	7,525	94.8	2
Raleigh	284,000	118	460	617	22	20,573	72.4	3
Winston-Salem	173,530	108	285	609	17	10,425	60.1	3
Out-of-State Municipalities								
Greenville, SC	60,000	28	142	423	6	2,800	46.7	2
Knoxville, TN	175,000	100	335	522	18	2,120	12.1	3
Montgomery, AL	213,000	160	435	490	15	24,050	112.9	2

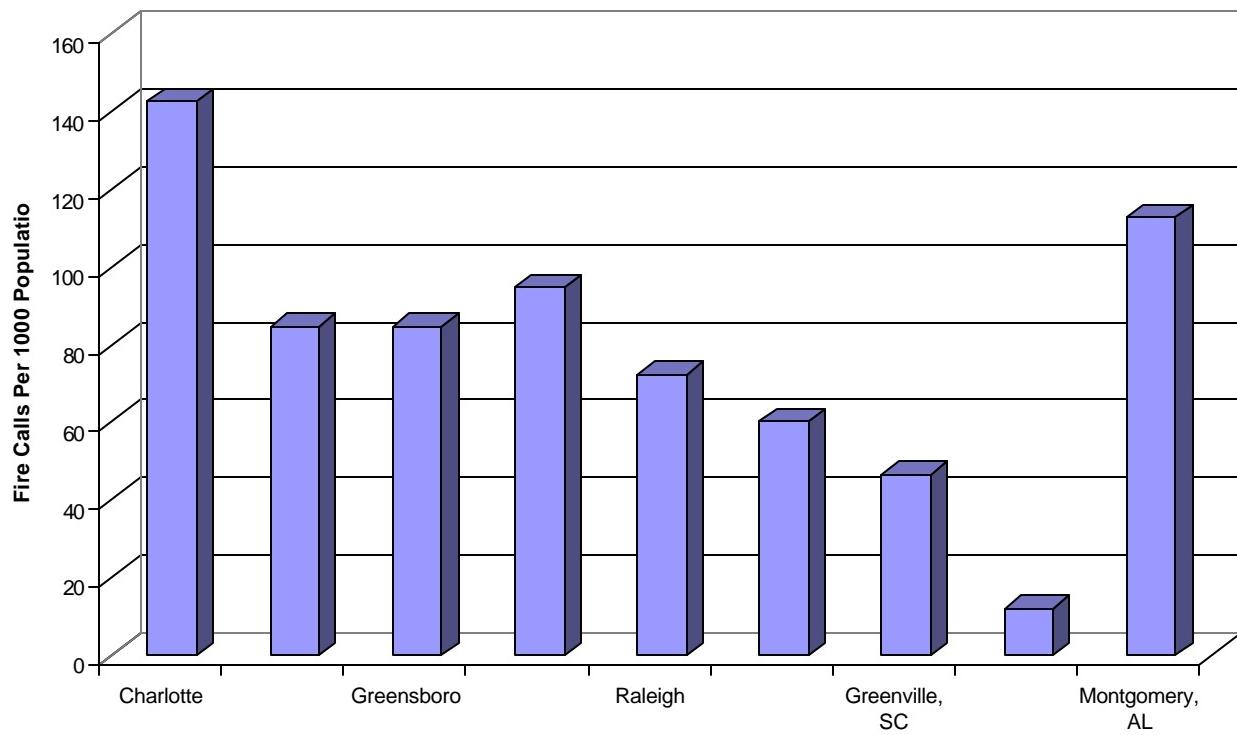
Source: Greensboro Fire Dept., 2000.

Figure 12-1: Residents to Firefighter Comparison Among Selected Municipalities, 1999



Source: Greensboro Fire Dept., 2000.

Figure 12-2: Firefighter Comparison in Selected Municipalities, 1999



Source: Greensboro Fire Dept., 2000.

Table 12-2: Greensboro Annual Fire Department Statistics, 1993-1999

Type of Calls	1993	1994	1995	1996	1997	1998	1999	Average Annual Change, 1993-1999
Total Emergency Responses	10,720	12,932	12,544	15,277	16,136	17,680	17,696	9.1%
Population	187,050	188,228	192,330	194,020	202,321	205,132	208,887	
Response Per 1000 Population	60	70	70	80	80	90	80	*NA
Response Time								
Average Response Time/ Call (min)	4.4 From dispatch to onscene	4.32 From dispatch to onscene	4.19 From dispatch to onscene	3.84 From dispatch to onscene	3.70 From dispatch to onscene	3.70 From dispatch to onscene	5.29 From reported to onscene**	3.1%
Annual Change	NA	-2%	-3%	-8%	-4%	0%	**NA	3.1%
Average Response Time/ EMS Call (min)	5.17 From dispatch to onscene	4.12 From dispatch to onscene	3.90 From dispatch to onscene	3.84 From dispatch to onscene	3.82 From dispatch to onscene	3.82 From dispatch to onscene	5.11 From reported to onscene**	-0.2%
Annual Change	NA	-20%	-5%	-2%	-1%	0%	**NA	-0.2%
Inspections								
Primary Commercial Inspections	19,989	13,992	15,464	15,987	14,049	13,287	11,923	-8.3%
Re-Inspections	7,996	5,597	6,186	6,395	5,620	5,315	4,769	-8.3%
Plans Reviewed	1,054	1,093	987	1,179	1,276	1,450	1,521	6.3%
Other Information								
Fire Loss	\$3,732,330	\$4,249,160	\$3,785,180	\$2,878,983	\$3,699,566	\$4,255,116	\$4,038,815	1.3%
Yearly Change	NA	14%	-14%	-24%	***29%	15%	-5%	***15%
Hydrants	8,759	9,537	9,690	6,728	9,922	8,957	9,273	1.0%
Hydrants/Sq. Mile	94	101	99	62	92	82	84	-1.9%

Source: Greensboro Fire Dept., 2000. *calculation is a ratio. ** Reporting Standards were changed from "Dispatch Time" to "Reported Time". *** Increase is due to Tax ReEvaluation by the County in 1996.

Table 12-3: Selected Factors Related to Greensboro Fire Department's Level of Service,
FY 1990-1991 to FY 1998-1999

Factor	1990-1991	1998-1999	Percent Change
Fire Companies	27	29	7.4%
Population*	185,789	208,887	12.4%
Land Area (Sq. Miles)	92.9	108.6	16.9%
Persons/Sq. Mile	1999.8	1923	-3.8%
Property Valuation	\$9,598,458,470	\$14,842,657,004	54.6%

Source: Greensboro Fire Dept., 2000. *Greensboro Planning Dept. estimates.

Table 12-4: Greensboro Fire
Department Apparatus &
Personnel, 2000

Apparatus	Quantity
On-Line Status	
Fire Engines	16
Quints	7
Rescue Units	2
Air Units	2
HazMat Units	2
Reserve Status	
Fire Engines	4
Trucks	2
Rescue Units	2
Total Personnel	395

Source: Greensboro Fire Dept.,
2000.

Table 12-5: Greensboro Fire Department Proposed Replacement/New Stations, 2001-2007

Station Number	Address	Built/Renovation Dates	Present Condition	Replace or New	Estimated Dates for Construction	Estimated Cost*
71064	Gatewood Ave.	1958	Poor	Replace	2005-2006	\$2,060,000
104208	High Point Rd.	1958	Poor	Replace	2005-2006	\$2,560,000
112605 S. Elm-Eugene St.		1960 Only Fair		Replace	2003-2004	\$2,250,000
NA Reedy Fork Area		NA	NA	New	2003-2006	\$3,095,000
NA East Greensboro Area		NA	NA	New	2002-2006	\$2,840,000
NA Grandover Area		NA	NA	New	2003-2004	\$2,500,000
NA Horsepen Creek Area		NA	NA	New	2002-2005	\$2,300,000
NA Lake Jeanette Area		NA	NA	New	2001-2002	\$2,500,000
Total Replacement/ Renovation Costs						\$20,105,000

Source: Greensboro Fire Dept., 2000. * Building cost only.

Chapter 13

Schools

SCHOOLS: INTRODUCTION

The Guilford County School System is the county's largest employer, with over 7,500 employees. It is the third largest school system in North Carolina, and is one of the top 60 systems in the nation. The School System includes 280 buildings, eight million square feet of space and more than 2,800 acres of land. A total of 660 buses provide transportation for students.

The Guilford County School system includes 97 schools with a total of 62,000 students. The System includes 62 elementary schools, 18 middle schools, 14 high schools, and three special schools. Three of the elementary schools are year-round schools: Brooks Global Magnet and Hampton in Greensboro, and Oak Hill School in High Point. Twelve magnet schools offer the regular comprehensive curriculum, plus specialized themes or studies, such as communications, cultural arts, or math and science. Two centers provide advanced studies: Eastern High School in Gibsonville and Southwest High School in High Point. Weaver Education Center in Greensboro offers advanced academics, performing arts, and vocational and technical training for high school students. Gateway Education Center is internationally known for its outstanding programs for children to age 20 who suffer from cerebral palsy, orthopedic impairments, and those who are severely and profoundly handicapped. McIver is a special school serving mentally challenged/ handicapped children between the ages of 5 and 21.

Due to the increasing number of school aged children, many of the schools within the Guilford County School System are at or exceeding capacity. Current enrollment standards for the various school levels are Elementary: 704, Middle: 878, and High: 1200-1800. Standards for students per classroom for the various school levels are Elementary: 24, Middle: 26, and High: 20. With these standards in place, district estimates are projecting that four to five new schools will be needed within the next ten years to meet the demand caused by rising enrollments in the northeast and northwest. Currently, two new schools are under construction in east Greensboro, and another 34 construction projects totaling \$250 million have been scheduled, including air conditioning, structural repairs, renovations, and expansions. The recent bond passage of \$200 million will fund most of these construction plans.

The School System's volunteer program matches responsible adults with students who need special attention and positive interaction. Volunteers serve as lunch buddies, tutors, mentors, and friends, giving their time and support. During the 1999-2000 school year, a total of 120,463 volunteer visits were made, logging 252,424 hours of service to the Guilford County Schools.

Business partnerships and volunteer programs are increasing each year. Almost 1,500 businesses and community groups in Guilford County, Greensboro and High Point, participate in the Partnerships in Education program. This program is designed to strengthen and enhance the quality of education. Volunteers share their time and knowledge with students in the program, which is sponsored by the High Point and Greensboro Chambers of Commerce and the Guilford County Schools. Businesses also provide apprenticeships and internships for students, part-time jobs, co-op programs, equipment, and supplies.

Parent volunteers are the major participants in the Comer Process. Forty-eight Guilford County schools have adopted this process. Parent Teams use collaboration and communication to solve students' problems with a no-fault-approach. This program calls for parents, teachers, principals, and the community to work together to enhance school achievement.

Parent-Teacher Association (PTA) members are also significant participants in the Guilford County School system. The PTA conducts fund-raising, service projects, and organizes special events. During the 1999-2000 school year, membership in the Guilford County School PTAs totaled 35,568 members.

Subjects covered in this chapter include existing and projected enrollment, school construction activity, capacity, and utilization.

SCHOOLS: SUMMARY HIGHLIGHTS

School System Statistics

The Guilford County School System is the county's largest employer, with over 7,500 employees. It is the third largest school system in North Carolina and one of the top 60 systems in the nation.

The School System includes 280 buildings, eight million square feet of space and more than 2,800 acres of land. The System's 660 buses provide transportation for students.

The System is composed of 97 schools: 62 elementary, 18 middle, 14 high, and 3 special schools.

Enrollment

Guilford County's school enrollment is expected to increase significantly over the next ten years, from 62,426 in 2000-2001, to 66,168 in 2008-2009, an increase of 6%.

For the same period, projected enrollment growth within each grade level varies greatly: elementary school should have a slight decrease of 1.8 percent, middle school should experience an increase of 8.4 percent, and high school should see the highest increase, 17.7 percent.

Construction Inventory

From 1950-1970, 59 of the System's 97 schools were built; 41 were elementary schools. During the 1990s, five new schools have been built and five expanded at a cost of \$118 million.

The recent passage of a major bond referendum for \$200 million will fund most of the scheduled 34 construction projects that are estimated to cost \$250 million. School officials project

that another \$131 million in improvements will be needed in order to fully implement the re-districting plan.

Regional Dropout and Retention

In 1998-1999 for grades 9-12, Alamance County experienced the highest retention rate at 61.4 percent, followed closely by Guilford and Forsyth Counties with 59.2 percent and 58.8 percent, respectively. Randolph and Rockingham had the lowest retention rates among Triad regional counties, at 56.5 percent and 56.1 percent, respectively.

Conversely, during the same time period for the same grade levels, Randolph County reported the highest dropout rate, followed by Rockingham, Forsyth, and Alamance Counties. Guilford County had the lowest dropout rate in the Triad region.

Table 13-1: Guilford County Schools, Demographic Percentages, 1998-2004							
Schools	Minority Percentage			Exceptional Children		English as a Second Language	
	1998-99	1999-00	2003-04	1998-99	1999-00	1998-99	1999-00
Elementary	51.0%	52.1%	52.1%	15.3%	15.6%	3.4%	3.6%
Middle	44.8%	45.8%	45.9%	14.9%	15.5%	2.5%	2.4%
High	40.0%	41.0%	42.1%	9.3%	9.3%	1.9%	2.0%

Source: Guilford County Schools, 2000.

Table 13-2: Guilford County School Enrollment and Projections, FY 1995-1996 to FY 2008-2009							
School Year	Elementary Grades K-5		Middle Grades 6-8		High Grades 9-12		Special Needs Students
	No.	Admissions	No.	Admissions	No.	Admissions	Admissions
1995-96	59	27,268	17	13,292	14	14,922	193
1996-97	59	29,281	17	13,846	14	15,058	172
1997-98	60	29,425	17	14,318	14	15,956	172
1998-99	60	30,245	17	14,793	14	16,090	187
1999-00	61	30,804	17	14,474	14	16,582	193
2000-01	62	30,511	18	14,843	14	17,072	207
Projections							
2003-04	NA*	30,560	NA*	16,446	NA*	19,246	--
2008-09	NA*	29,978	NA*	16,090	NA*	20,100	--

Source: Guilford County School Administrative Unit, 2001. *Depends on future construction schedule.

Figure 13-1: Guilford County School Enrollment and Projections, FY 1995-1996 to FY 2008-2009

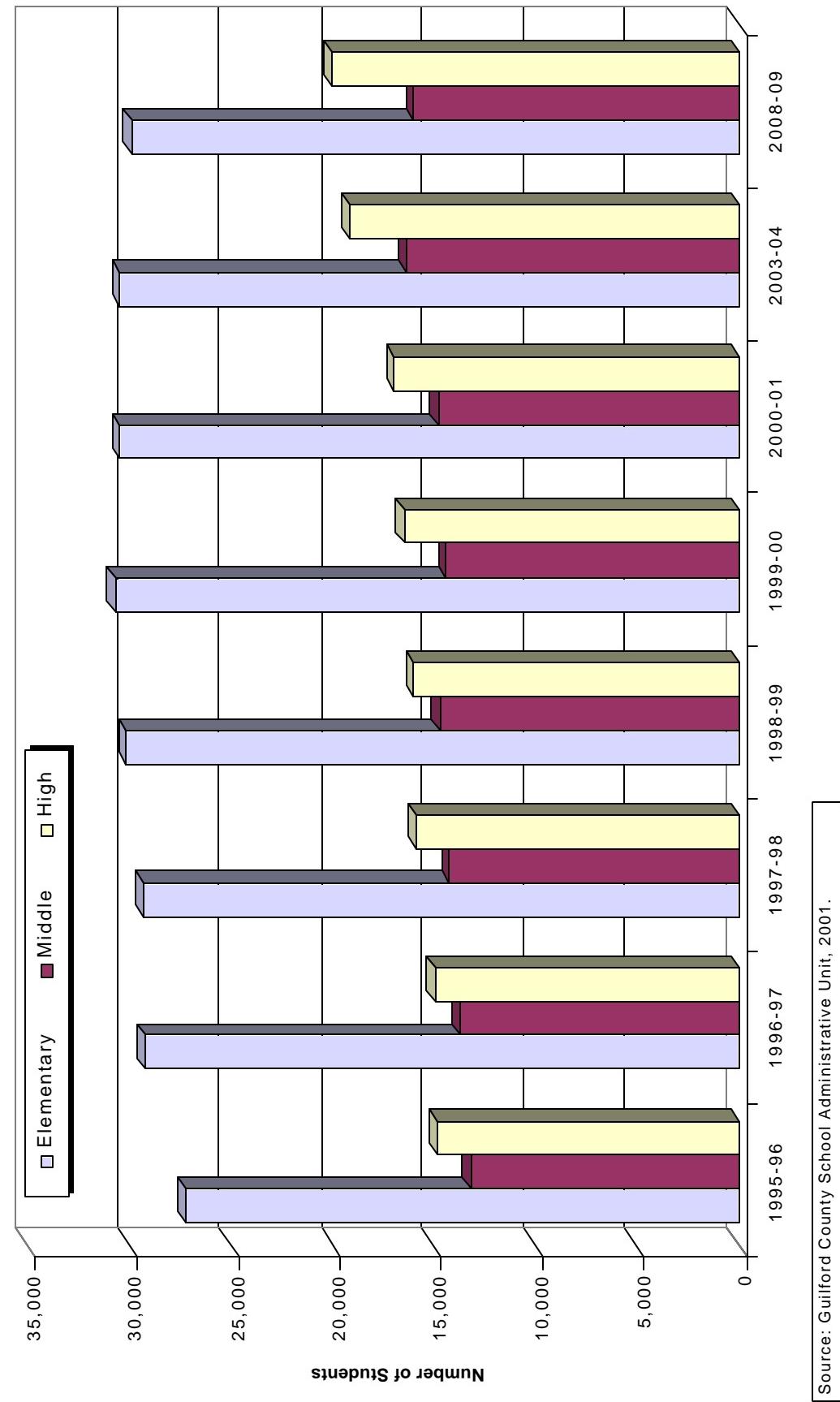


Table 13-3: Guilford County Schools' Capacity Projections, FY 2003-2004 and FY 2008-2009

Schools	Estimated Students, 2003-04	Estimated Students, 2008-09	Existing* Capacity	Adjusted Capacity
Elementary	30,560	29,978	28,601	33,748
Middle	16,446	16,090	12,616	16,722
High	19,246	20,100	14,205	18,585

Source: Guilford County Schools, 2000. *Fall of 1999.

Table 13-4: Regional Public School Dropout and Retention Data, 1998-99

School System	Grade 9 Enrollment 1995-96	Grades 9-12 Estimated Retention Rate	1998-99 Grades 7-12 Duplicated Dropouts*		1998-99 Grades 9-12 Duplicated Dropouts*	
			Number	Rate	Number	Rate
Alamance-Burlington	1,539	61.4	418	4.75	407	7.09
Forsyth County	3,532	58.8	929	4.95	890	7.15
Guilford County	5,179	59.2	1,152	4.26	1,109	6.34
Randolph County	1,346	56.5	436	6.04	401	8.75
Rockingham County	1,295	56.1	359	5.51	332	7.93

Source: NC Dept. of Public Instruction, The North Carolina Statistical Profile-2000. *Duplicated Drop-outs-some persons may be counted more than once if they dropped out more than once during the time period.

Table 13-5: Guilford County Schools Construction Inventory, 1920-1999

Decade	High Schools	Middle Schools	Elementary Schools	Special Schools	Total
1920s	3	1	8	1	13
1930s	0	1	2	0	3
1940s	0	2	3	0	5
1950s	2	5	33	0	40
1960s	6	5	8	0	19
1970s	3	1	6	0	10
1980s	0	0	0	2	2
1990s	0	2	3	0	5

Source: Guilford County Public Schools, 2000.

Chapter 14

Library System

LIBRARY: INTRODUCTION

The Greensboro Public Library, established in 1902, provides library services to all residents of Guilford County. The Library System includes a new Central Library that opened in 1998, eight branch libraries, a mobile unit, and the Greensboro Historical Museum. More than 20 advisory committees provide continuous ideas and recommendations for the System. The Library provides 191 public computers with Internet Access, 541,534 book volumes, 17,621 serial volumes (periodicals), plus audio books, videotapes, CDs, and DVDs, to equal a total collection size of 581,004 for circulation. Special resource centers include Nonprofit, Neighborhood, Multicultural, Adult Literacy, Exceptional Children, Job and Career Counseling, and Home Improvement. The Library System coordinates the Community of Readers, a network of 25 organizations working to promote reading and literacy.

Two major studies have been completed within the last few years: the Strategic Plan in 1996, with a plan update scheduled for fiscal year (FY) 2001-2002, and the Strategic Plan for Community Services in 1998. Both plans are being implemented and continually reviewed.

This chapter describes existing resources, staff, facilities, geographic coverage, and library service factors for selected cities.

LIBRARY: SUMMARY HIGHLIGHTS

Library Resources

Between FY 1995-1996 and FY 1999-2000, the audiotape collection increased by 82.5 percent, followed by a 73.2 percent increase in the video collection, while the serial volumes increased by 22.5 percent. During the same time period, the adult book collection size declined by 31.3 percent, with the children's books declining by 24 percent. Other non-print materials decreased by 97 percent.

The Central Library added 122 Internet stations between FY 1997-1998 and FY 1998-1999. Twenty-nine Internet stations were added to branch libraries.

Between FY 1995-1996 and FY 1999-2000, full time staff declined by eight positions, while professional staff remained fairly constant.

Library Use Measures

Between FY 1995-1996 and FY 1999-2000, patrons in the legal service area of the library system (Guilford County, excluding High Point) increased by 5.2 percent. Library card holders increased by 17.3 percent.

During that same time period, library visits increased 16.8 percent (292,584), while total circulation decreased 9.8 percent.

Geographic Distribution

In 2000, 39 percent of library patrons resided outside of Greensboro's city limits, while the remaining 61 percent were Greensboro residents.

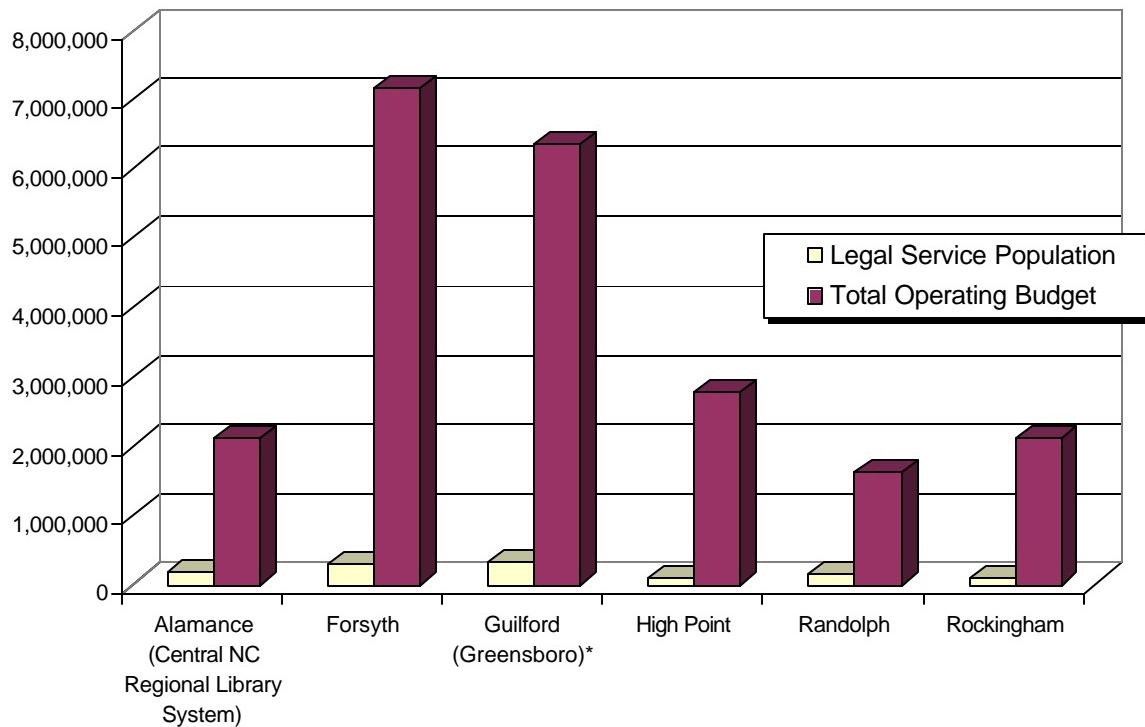
In FY 1999-2000, the Central Library had both the highest circulation and the highest visits, followed by the Benjamin and Guilford Branches.

Table 1: Triad Regional County Library Statistics, 1999-2000

County Libraries	Legal Service Population	Total Operating Dollars Per Capita	Total Operating Budget
Alamance (Central NC Regional Library System)	171,306	12.27	2,102,693
Forsyth	291,839	24.51	7,152,601
Guilford (Greensboro)*	316,682	20.00	6,332,370
High Point	77,586	35.73	2,772,275
Randolph	126,253	12.93	1,632,424
Rockingham	89,745	23.50	2,108,874

Source: Statistics of North Carolina Public Libraries July 1, 1999 - June 30, 2000, Library Development Section, State Library of NC, 2000. *This is the Library's total operating budget excluding the Greensboro Historical Museum.

Figure 1: Triad Regional County Library Statistics, 1999-2000



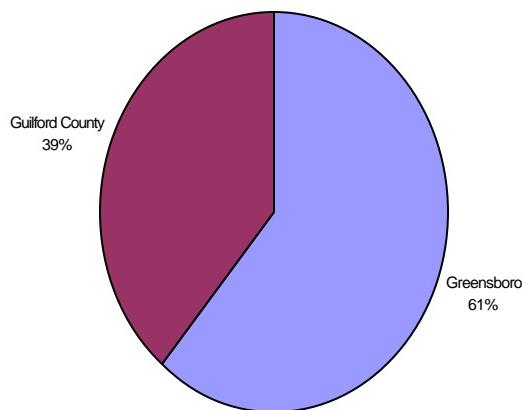
Source: Statistics of North Carolina Public Libraries July 1, 1999 - June 30, 2000, Library Development Section, State Library of NC., 2000. *This is the Library's total operating budget excluding the Greensboro Historical Museum.

Table 13: Geographic Distribution of Public Library Patrons, 2000

Locations	Percent of Patrons
Greensboro	61%
Guilford County	39%

Source: Greensboro Public Library, 2000.

Figure 13: Geographic Distribution of Public Library Patrons, 2000



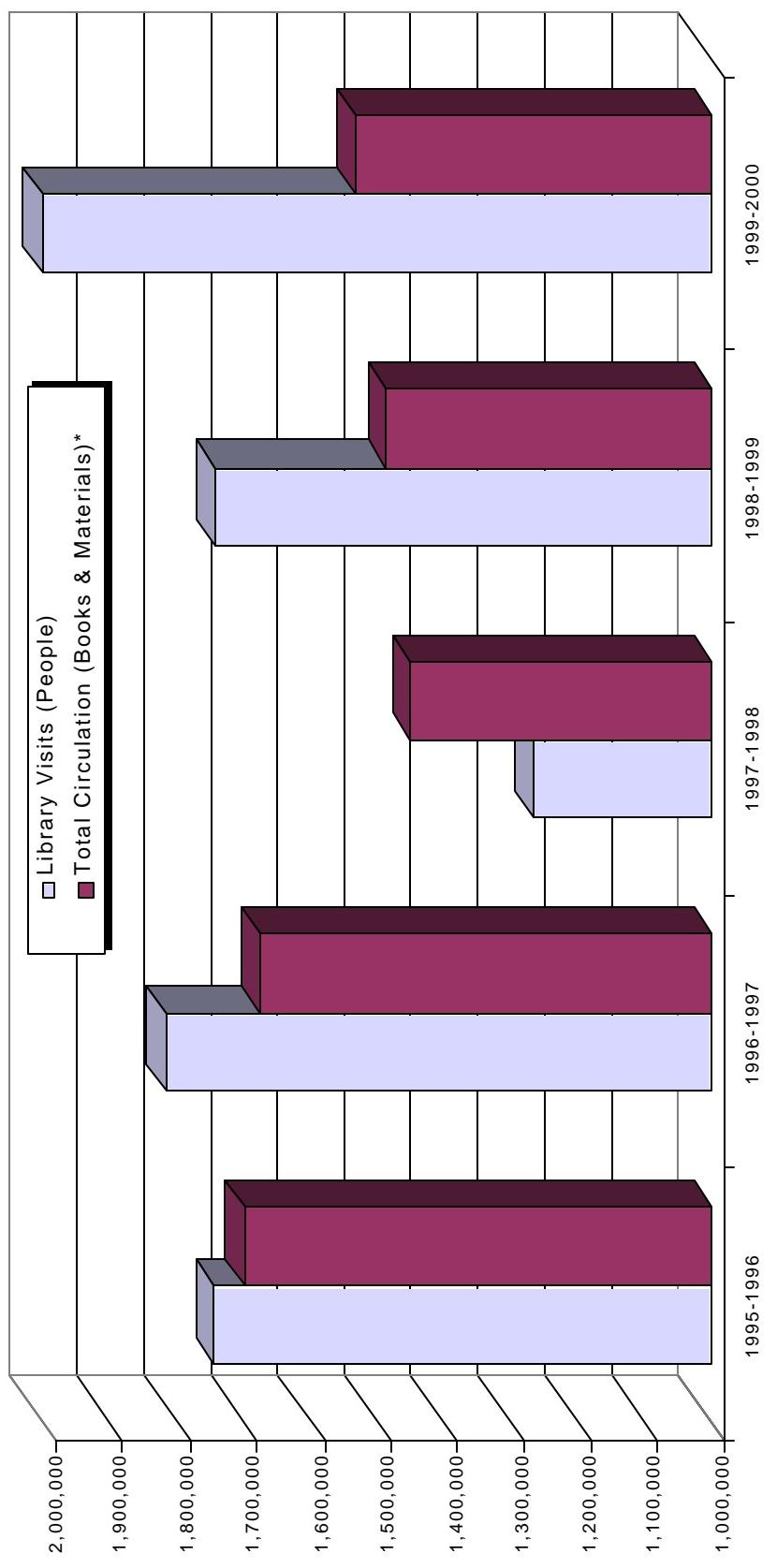
Source: Greensboro Public Library, 2000.

Table 11: Greensboro Public Library Selected Measures, FY 1995-1996 to FY 1999-2000

	Patron Use Measures	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000
Legal Service Area (Population, Excluding High Point)	300,896	305,260	310,496	314,522	316,682	
Registered Borrowers	147,265	121,024	133,763	154,170	172,678	
Percent of Population Registered	48.9	39.6	43.0	49.0	54.5	
Library Visits (People)	1,743,537	1,814,700	1,266,951	1,742,326	2,036,121	
Total Circulation (Books & Materials)*	1,696,668	1,674,511	1,448,086	1,486,842	1,530,999	
Circulation Per Capita	5.64	5.48	4.66	4.7	4.83	

Source: Greensboro Public Library, 2000. *Numbers have decreased from FY 1996-1997, as is the national trend. However, circulation numbers have risen since FY 1998-1999.

Figure 1: Greensboro Public Library Circulation, FY 1995-1996 to FY 1999-2000



Source: Greensboro Public Library, 2000. *Numbers have decreased from FY 1996-1997, as is the national trend. However, circulation numbers have risen

Table 14-4: Greensboro Public Library Circulation & Library Visits, FY 1997-1998 to FY 1999-2000

Agency	Circulation Total FY 1997-1998	Circulation Total FY 1998-1999	Circulation Total FY 1999-2000	Library Visits Total FY 1998-1998	Library Visits Total FY 1998-1999	Library Visits Total FY 1999-2000
Central/AV	309,060	406,436	473,746	249,497	639,552	901,758
Benchmark	142,745	130,336	135,588	80,484	131,419	172,967
Benjamin	278,589	279,407	277,397	221,551	112,056	200,312
Chavis	38,307	33,513	31,091	87,843	184,923	121,217
Glenwood	93,059	92,674	87,745	N/A	171,134	145,916
Guilford	242,539	218,753	217,101	227,230	205,023	220,705
McGirt-Horton	38,724	35,701	33,455	124,153	102,683	90,742
Northeast	119,795	108,075	100,774	173,766	130,605	113,037
Southwest	160,286	152,669	149,230	102,427	64,931	69,467
Cheer*	24,982	29,278	24,872	N/A	N/A	N/A
TOTAL	1,448,086	1,486,842	1,530,999	1,266,951	1,742,326	2,036,121

Source: Greensboro Public Library, 2001. *Cheer is a mobile resource that visits sites in the area. Since it is not a building it has no door count.

Table 14-5: Greensboro Public Library Cards, FY 1997-1998 to FY 1999-2000

Agency	Total History			
	1997-1998	1998-1999	1999-2000	Dec. 2000
Central/AV	37,524	**N/A	**N/A	51,921
Benchmark	10,706	**N/A	**N/A	13,585
Benjamin	17,785	**N/A	**N/A	21,640
Chavis	8,325	**N/A	**N/A	10,309
Glenwood	5,935	**N/A	**N/A	9,813
Guilford	20,926	**N/A	**N/A	26,355
McGirt-Horton	4,731	**N/A	**N/A	6,111
Northeast	10,852	**N/A	**N/A	13,428
Southwest	16,627	**N/A	**N/A	20,687
Cheer*	352	**N/A	**N/A	490
TOTAL	133,763	154,170	172,678	174,339

Source: Greensboro Public Library, 2001. *Cheer is a mobile resource that visits sites in the area. Since it is not a building it has no door count. **This data was not historically recorded by location. It was available for FY 1997-1998 because it had been gathered for a special report that year. As of FY 2001-2002 we have decided to record this data as a matter of routine. Note: The actual library card count through February 2001 is 180,715. This discrepancy is due some card holders having no, or an inaccurate agency code.

Chapter 15

Parks and Recreation

PARKS AND RECREATION: INTRODUCTION

Parks and recreation facilities and services are provided to Greensboro by 246 full-time and 53 part-time employees in five departmental divisions. Those divisions are Administrative Services; Youth and Community Services; Cultural Programs and Regional Parks; Special Facilities and Landscape Management; and Bur-Mil Park and Watershed Parks. Principal facility types include Parks (mini, neighborhood, community, magnet, regional, beautification, and natural areas), Recreation Centers, Special Facilities, and Watershed Parks and Trails.

Greensboro once had the highest parkland to population ratio of any North Carolina city. Other cities such as Raleigh and High Point have now met or exceeded Greensboro's ratio. Five regional parks, including three public golf courses, represent over one-half of Greensboro's park system of 3,480 acres. Greensboro's system also has over 60 miles of trails.

For the ninth year, the National Arbor Day Foundation has named Greensboro Tree City USA. The National Gold Medal Award of The Sports Foundation, given in recognition of excellence in parks and recreation management, was presented to the Greensboro Parks and Recreation Department in 1979 and 1987 for its outstanding programs and services, the best in the country in the population class of 100,000 to 250,000.

A Parks and Recreation master plan for the City of Greensboro was completed in 1998. This comprehensive plan, with recommended completion by 2017, provides strategies for programming and for the planning of parks and recreational programs. The Plan includes six community parks, 16 neighborhood parks, 20 miles of greenway, 36 ball fields, five swimming pools, two recreation centers, and a community center. The plan also outlines strategies for developing partnership opportunities with public, quasi-public, and private agencies to provide leisure services and facilities.

Greensboro citizens recently approved bond funding of \$34,200,000. The planned capital improvement program includes the construction of Barber and Southwest Recreation Centers, development of Keeley and Carolyn S. Allen Community Parks, replacement of Simkins Sports Pavilion roof, the air-conditioning of 13 recreation center gymnasiums, replacement of floors and bleachers at 12 centers, replacement of park play equipment and bleachers, renovation of park restrooms, and improvements at City lake facilities.

Greensboro and Guilford County show a history of increases in publicly preserved parks and open space. In addition, there is privately owned recreation space and open space that has not been counted. Environmental regulations such as stream buffer requirements and wetland protection will continue to assist in the protection of open spaces in the future.

PARKS AND RECREATION: SUMMARY HIGHLIGHTS

A citizen driven Master Plan completed in 1998 guides the Greensboro Parks and Recreation Department.

The five departmental divisions provide facilities, services, and programs on approxi-

mately ,500 acres of parkland and over 60 miles of trails. Greensboro's long time lead in the ratio of parkland to population has now been met or exceeded by Raleigh and High Point.

The recently completed master plan included recommendations to expand existing parkland through the addition of six community parks, 16 neighborhood parks, and 20 miles of new trails and greenways over the next fifteen years. The master plan also recommended program expansion to meet the needs of the growing City by adding 36 ball fields, five swimming pools, two recreation centers, and a community center.

Strong citizen approval of the master plan was evident during the November 2000 bond referendum in which citizens approved \$34.2 million to improve Greensboro parks and recreation facilities.

Guilford County Parks and Open Space Inventory

The Guilford County Open Space Committee compiled an inventory of existing parkland and open space in 1999. The inventory did not include common property owned by residential associations, remaining parcels from highway construction, and utility rights of way. The inventory provided major open space and parkland acreage, including 7,035 acres of parkland, 5,380 acres of surface water, 5,274 acres of watershed land, 900 acres of farmland, and 784 acres of flood plain or open space.

The inventory indicated that 4.7 percent of the total acreage within Guilford County is protected by some type of government ownership or conservation easement. Guilford County has a total of 417,308 land acres, of which 19,561 (including 5,380 acres of surface water) are currently protected.

Greensboro Parks and Recreation

The Greensboro Parks and Recreation Department provides parks of all sizes for Greensboro's citizens. They include mini parks (or pocket parks), which are one to four acres and serve primarily small areas, neighborhood parks, which are 5 to 15 acres and serve a population up to 5,000, and community parks, which are 16 to 75 acres and serve an area of two miles. Other parks are classified as distinctive and/or assorted facilities, which are 76 to 200 acres in size. These parks exist to enhance or use special features of the area.

Trails are found throughout Greater Greensboro, and are paved or hiking in type, and vary in their length.

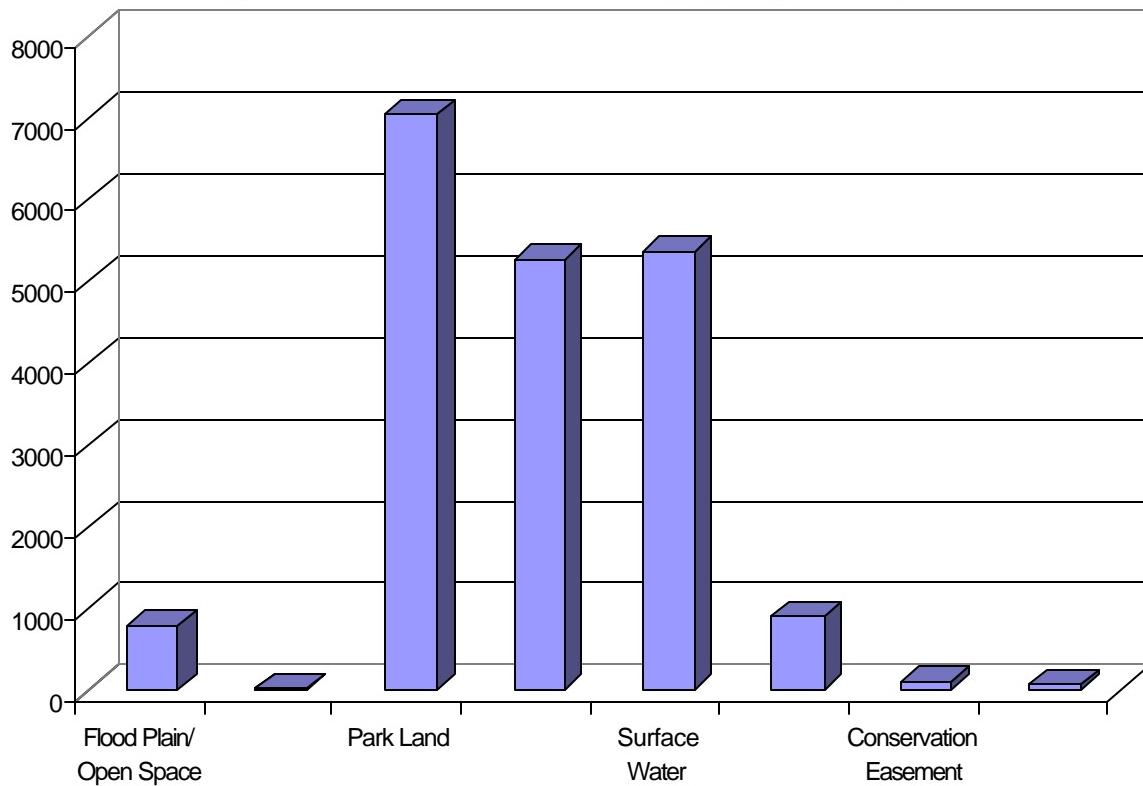
Guilford County Parks and Recreation

In 2000, Guilford County contained approximately 7,390 acres in parks and recreation facilities. Of those acres, Greensboro provides approximately 3,480 acres, or 47 percent of the County total.

Table 15-1: Guilford County Parks & Open Space* Inventory Summary, 1999		
Property Type	Acres	Acres Per 1,000 Persons**
Flood Plain/ Open Space	783.89	1.99
Greenway	5.44	0.01
Park Land	7,035.47	17.88
Watershed Land	5,273.61	13.40
Surface Water	5,379.51	13.67
Farm	900.15	2.29
Conservation Easement	112.10	0.28
Water Quality Conservation Easement	70.49	0.17
Total	19,560.66	49.69

Source: Guilford County Planning & Development Dept., Guilford County Open Space Report, 2000. *Includes farm land, but not public land & surface water.
**Based upon 1999 Guilford County population est. of 393,496, Guilford County: 417,307.69 acres.

Figure 15-1: Distribution of Guilford County Open Space Acres, 1999



Source: Guilford County Planning & Development Dept., Guilford County Open Space Report, 2000. *Includes farm land, but not public land & surface water. **Based upon 1999 Guilford County population est. of 393,496, Guilford County: 417,307.69 acres.

Table 15-2: Greensboro Parks and Recreation Facilities and Acreage Totals, 2000

Facility or Classification	Acreage
Recreation Centers & Community Parks	704.76
Magnet Parks (Bryan Park)*	1,006.00
Mini Parks	57.30
Natural Areas	190.15
Neighborhood Parks	499.55
Regional Parks	761.50
Special Facilities	260.50
Total	3,479.76

Source: Greensboro Parks & Recreation Dept., 2000. *Bryan Park is listed on the map as a Regional Park.

Table 15-3: Guilford County Parks and Recreation Facilities and Acreage Totals, 2000

City of Greensboro	3,479.76
City of High Point	1,705.36
Guilford County Parks	1,067.00
Guilford County/ Forsyth County Park (Triad Park)	435.00
Guilford County/ City of Greensboro (Bryan Park)	534.00
Jamestown Parks	168.70
Total	7,389.82

Source: Guilford County Planning & Development Dept., 2000.

Chapter 16

Financial Conditions

FINANCIAL CONDITIONS: INTRODUCTION

The financial soundness of Greensboro impacts the extent and quality of services that may be provided, and the ability to react quickly to change and new directions. Financial information provides measures to gauge how well the City is performing against its own goals and objectives, and to compare data with other benchmark cities.

The City operates within a structure of seven fund groupings: General, Special Revenue, Debt Service, Capital Projects, Enterprise, Internal Service, and Trust. The General Fund finances most of the Cities' common functions. In Greensboro, the General Fund provides 58 percent of the services.

This chapter highlights overall financial resources at the organization-wide level. Included is a summary of historical information about revenues and expenditures for the period of FY 1990-1991 through FY 1999-2000, and key financial indicators.

FINANCIAL CONDITIONS: SUMMARY HIGHLIGHTS

The City of Greensboro has received very favorable evaluations of credit worthiness from nationally recognized credit rating agencies on its General Obligation debt issues. Standard and Poor's (S&P) and Moody's Investors Service (Moody's) have given the City of Greensboro's debt instruments their highest and second highest rating, AAA and Aa1, respectively.

The City of Greensboro's current debt burden as a percentage of the legally allowed debt limit is at the lower end of the state limit. The legal limit is eight percent of the City's total property assessed valuation, and in FY 1999-2000, the City's net debt percentage was 1.5 percent.

The City of Greensboro's current net bonded debt per capita has remained relatively stable during the period of FY 1994-1995 to 1998-1999, ranging from a low of \$643 in FY 1996-1997 to a high of \$822 in FY 1997-1998.

The City has maintained an undesignated fund balance (funds set aside for emergencies and to provide working capital) of nine percent of the adopted General Fund budget. The North Carolina Local Government Commission recommends that local governments maintain a fund balance of at least eight percent of the adopted General Fund budget.

Fund Sources, 2000

Greensboro receives its funds from the following revenue sources:

General Fund: a variety of taxes, services, fees, etc., however, of all of these taxes, property taxes comprise about 53 percent of the total Revenue Fund;

Special Revenue: motor vehicle licenses and fuel tax, storm water fees, occupancy tax, cemetery fees, federal, state, and local grants;

Enterprise Fund: water and wastewater fees, coliseum charges, golf fees, meter and parking fees, and waste disposal fees; and
Other Sources: Debt Service, Capital Project, and Internal Services.

Revenues and Expenditures

General Fund revenues increased from \$103 million in FY 1990-91 to \$160 million in FY 1999-2000, an increase of 55.3 percent. For the same period, General Fund expenditures increased from \$91 million to \$133 million, an increase of 46.1 percent.

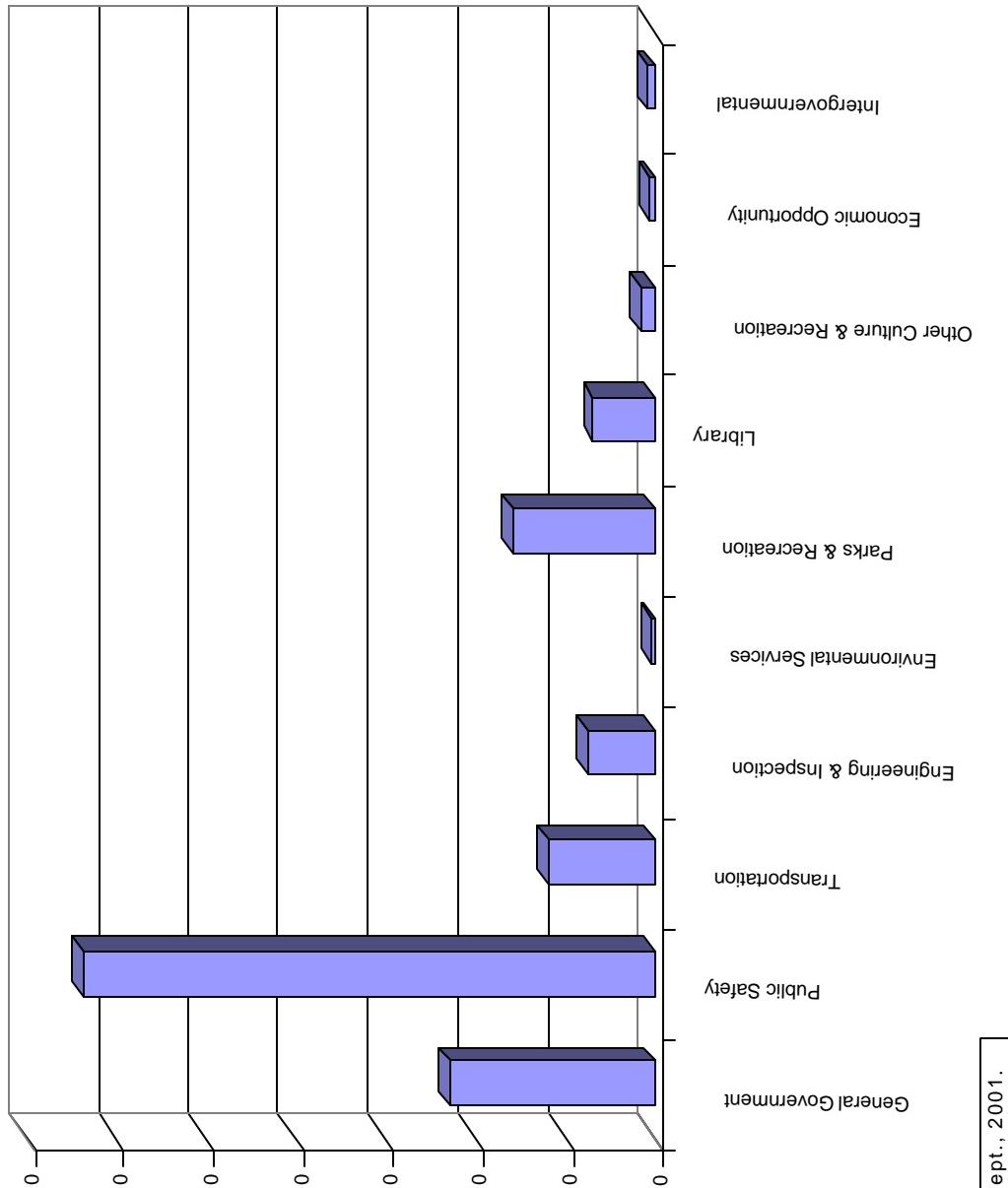
In FY 1999-00, the top five sources of General Fund revenues were property taxes (\$88 million), sales tax (\$28 million), charges for current services (\$13 million), utility franchise (\$11 million), and licenses and permits (\$6 million). For the same year, the principal expenditures were public safety (\$64 million), general government (\$23 million), parks and recreation (\$16 million), transportation (\$12 million), and engineering and inspections (\$7 million).

Table 16-4: Greensboro's General Fund Expenditure History FY 1990-1991 to FY 1999-2000

Table 16-4: Greensboro's General Fund Expenditure History FY 1990-1991 to FY 1999-2000						
Source:	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
General Government	16,326,995	16,909,483	17,593,845	16,547,529	17,458,253	17,943,550
Public Safety	40,910,242	42,106,627	43,648,543	47,216,510	49,988,500	52,042,384
Transportation	9,930,600	10,363,627	10,325,314	10,291,183	10,504,673	11,422,967
Engineering & Inspection	5,826,516	5,881,738	5,923,571	6,104,070	6,392,755	6,767,229
Environmental Services	0	296,136	671,386	276,957	820,723	811,057
Parks & Recreation	10,745,550	11,241,110	11,691,389	13,191,074	12,619,519	13,411,345
Library	4,255,739	4,238,495	4,411,383	4,952,046	5,148,106	5,233,445
Other Culture & Recreation	1,304,707	1,217,421	1,357,537	2,029,448	1,389,169	1,405,122
Economic Opportunity	336,500	344,100	335,945	333,500	283,570	297,815
Intergovernmental	232,136	252,756	544,903	601,611	757,062	729,423
Total Expenditures	91,320,630	90,165,121	93,226,743	96,109,387	102,087,694	105,352,664
					109,894,621	116,292,880
					121,844,962	132,509,477

Source: Greensboro Finance Dept.; 2008.

Figure 16-1: Greensboro's General Fund Expenditure History, FY 1999-2000

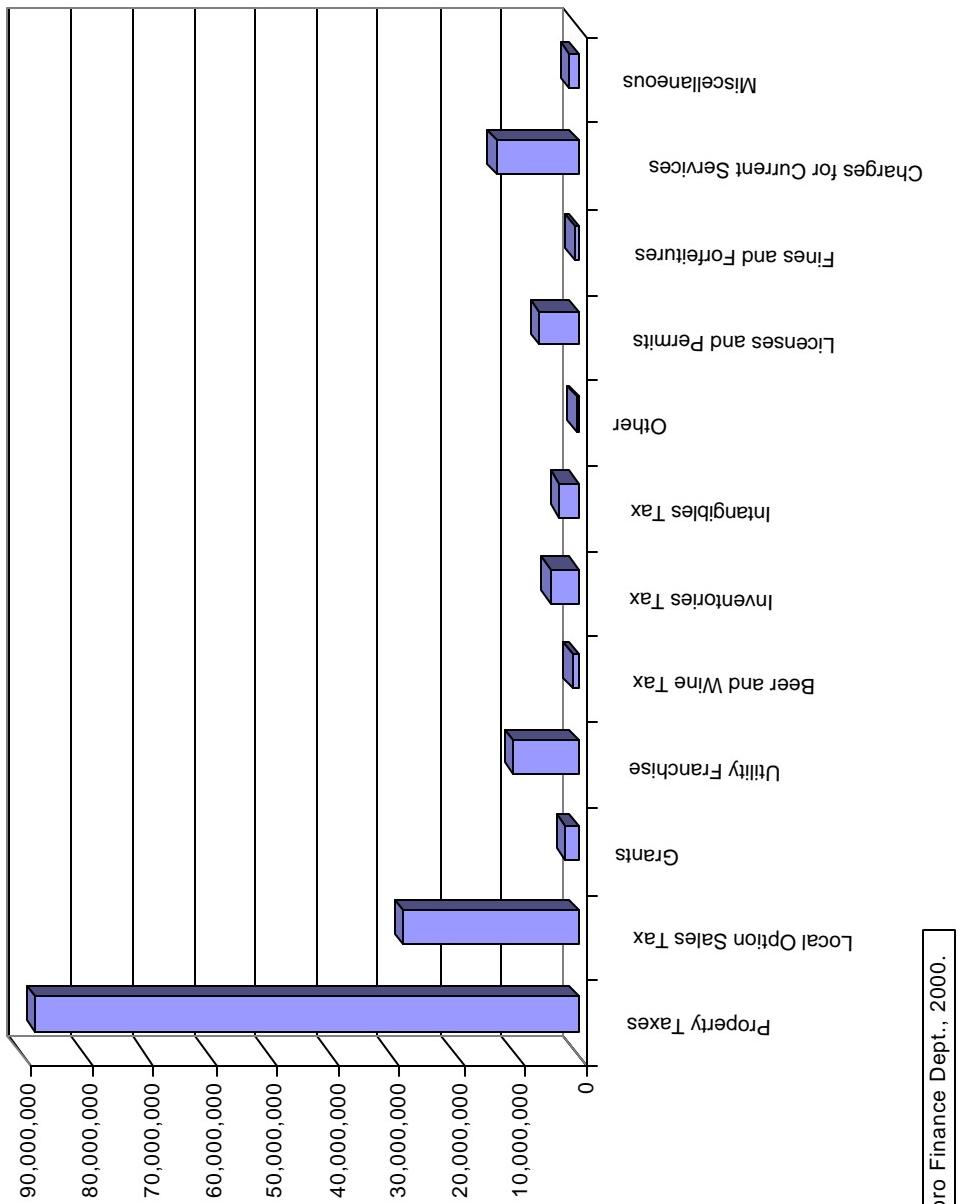


Source: Greensboro Finance Dept., 2001.

Table 16-5: General Fund Revenue History FY 1990-1991 to 1999-2000

	Actual (in dollars)					
	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
Source:						
Property Taxes	56,431,647	59,287,121	65,494,210	67,468,052	70,657,654	71,523,606
Local Option Sales Tax	17,591,333	17,132,396	17,810,904	19,613,070	21,241,316	23,219,514
Grants	1,032,752	900,038	1,258,152	775,174	1,019,629	1,014,363
State Shared:						
Utility Franchise	7,336,822	7,008,731	6,943,007	7,226,577	7,055,233	8,127,096
Beer and Wine Tax	809,365	708,894	713,545	747,091	744,025	798,115
State Reimbursements:						
Inventories Tax	3,725,047	4,748,562	4,573,741	4,600,943	4,543,976	4,546,348
Intangibles Tax	3,628,575	3,095,158	3,559,516	3,496,311	3,066,523	3,123,230
Other	911,436	553,753	405,019	369,454	366,311	357,830
Licenses and Permits	2,736,720	2,908,891	3,397,828	3,459,103	4,050,360	4,838,178
Fines and Forfeitures	361,312	431,696	449,602	524,849	469,563	481,024
Charges for Current Services	6,657,566	5,319,369	5,938,634	7,359,364	7,709,567	7,315,793
Miscellaneous	1,327,979	2,303,728	1,927,330	1,357,590	1,646,712	1,905,995
Total Revenues	102,550,554	104,398,337	112,471,488	116,997,578	122,570,869	127,251,092
Source: City of Greensboro Finance Dept., 2000.						

Figure 16-2: General Fund Revenue History FY 1999-2000



Source: City of Greensboro Finance Dept., 2000.

Chapter 17

Capital Improvements Program

CAPITAL IMPROVEMENTS PROGRAM: INTRODUCTION

The City of Greensboro has administered a Capital Improvement Program (CIP) for 32 years. The CIP provides a comprehensive listing of needed public improvements, as well as estimated future revenues and operating expenditures projected on a six-year basis. The CIP process emphasizes the importance of relating the City's comprehensive plan to its fiscal capability. The CIP takes into consideration planning, design, and development costs when scheduling public improvement projects.

Specifically, the CIP is a construction/ acquisition plan for projects that require significant capital investment. The CIP, which is updated annually and adopted by the City Council, describes the City's capital project schedules and priorities for the six years following Council adoption.

Generally, capital improvement projects consist of purchasing, constructing, or renovating structures, and/or acquiring lands that have a total cost of at least \$100,000 and an estimated useful life of at least ten years. Typical CIP projects include new or improved sidewalks, roads, neighborhood renewal projects, and new City facilities, such as recreation centers, fire stations, and water treatment facilities.

FY 2001-2007 CIP totals \$409,516,255, an eight percent decrease from the adopted FY 2000-2006 CIP, which was \$429,238,805. Greensboro citizens approved bond referendums in 1985 for \$31.1 million, 1988 for \$85 million, 1990 for \$50.9 million, 1996 for \$35 million, and recently in 2000 for \$135.9 million. Of the total debt approved prior to 2000, \$2.5 million remains un-issued for communications systems and fire stations.

Table 17-1 provides a summary of major City facilities and replacement and renovation requests for 2001-2007. Program categories include Public Safety, Transportation, Environmental Protection, Culture and Recreation, and General Government.

In November 2000, the citizens of Greensboro approved eight bond issues. These issues, shown in Table 17-2, included \$71.8 million for street improvements, \$2 million for public transportation, \$2.8 million for neighborhood development, \$34.2 million for parks and recreation facilities, \$9.6 million for fire stations, \$7.1 million for law enforcement facilities, \$5 million for library facilities, and \$3.5 million for the Natural Science Center.

Bond-financed and other major capital projects completed, or in progress, include street and bridge projects, fire station replacement, water and sewer system upgrades, renovations of existing facilities, and landfill expansion.

The six-year Capital Improvement Plan (CIP) includes funds for projects that will be undertaken during 2001-2007. These projects will be funded primarily with the proceeds of authorized or proposed bond sales, state and federal grants, and enterprise fund revenues.

CAPITAL IMPROVEMENTS PROGRAM: SUMMARY HIGHLIGHTS

The Capital Improvements Program (CIP) is a construction/ acquisition plan for projects that require significant capital investment. The CIP, which is updated annually and adopted by the City Council, describes the City's capital project schedules and priorities for the six years following Council adoption.

Major Capital Projects, FY 2001-2007

FY 2001-2007 CIP totals \$409,516,255, an eight percent decrease from the adopted FY 2000-2006 CIP, which was \$429,238,805.

Bond Referenda, 1985-2000

Greensboro citizens approved bond referendums in 1985 for \$31.1 million, 1988 for \$85 million, 1990 for \$50.9 million, 1996 for \$35 million, and recently in 2000 for \$135.9 million. Of the total debt approved prior to 2000, \$2.5 million remains unissued for communications systems and fire stations.

In November 2000, the citizens of Greensboro approved eight bond issues. These issues included \$71.8 million for street improvements, \$2 million for public transportation, \$2.8 million for neighborhood development, \$34.2 million for parks and recreation facilities, \$9.6 million for fire stations, \$7.1 million for law enforcement facilities, \$5 million for library facilities, and \$3.5 million for the Natural Science Center.

Capital Projects Completed or In Progress

Bond-financed and other major capital projects completed, or in progress, include street and bridge projects, fire station replacement, water and sewer system upgrades, renovations of existing facilities, and landfill expansion.

- Replacement of Fire Station Number 18 is complete, at an estimated cost of \$1.5 million. In addition, a \$14.5 million Public Safety Training Facility is being funded from general obligation bond proceeds issued in 1998. This project is under construction and has an anticipated completion date of 2002.
- Renovations of existing City facilities are underway, including \$2.1 million for heating and lighting upgrades and remodeling of current office space. In addition, the City acquired a property in its southeastern section to be used for expansion of the Municipal Service Center and other operations. Water Resources staff will move to the new site, which is also a potential site for a new police substation. Work has also begun on upgrades to the Historical Museum's heating and ventilation system at an estimated cost of \$1.3 million.
- Three new police service centers are planned in support of the police service district concept. The first center on Maple Street opened in FY 1999-00. The other two were included in the 2000 bond referendum.

- Over \$7.5 million in signal improvements and roadway and bridge projects were accomplished during FY 1999-00. Completed projects include street widening and improvements on Lake Brandt Road and Lawndale Drive to the City limits, Horsepen Creek Road at Drawbridge Parkway, Stanley Road, and Hilltop Road. Four additional transportation-related projects, including widening on New Garden Road, were authorized and planned for construction. The New Garden Road project began construction in January 2001.
- Expansion of the Osborne Wastewater Treatment plant, estimated at a total cost of \$40 million, was completed in June 2001 for an additional 10 million gallons per day (mgd). The project has increased the plant's sewage treatment capacity to 30 mgd. Phase IV will increase the plant's sewage treatment capacity to 40 mgd and is expected to be completed in February 2003.
- Improvements to the Lake Daniel Reservoir, at an estimated cost of \$5.7 million are now complete. A water tank feeder main on Battleground Avenue was also completed and will improve water availability and distribution. Pursuant to the City's agreement with the City of Reidsville to purchase up to 5 mgd of water, construction of a new water main in the northern corridor is complete and improvements to the Reidsville Water Treatment plant are underway.
- In accordance with state regulations, the City's Phase II landfill site on White Street was closed and capped in December 1997. The City concurrently opened a new 25-acre lined cell as part of the Phase III expansion. Cell two began accepting waste in June 2001 and cell three is scheduled to begin filling in 2005. This expansion is being financed by \$16 million of Special Obligation Bonds issued in May 1997. The City intends to increase various fees and charges related to the operation of its solid waste system over the next few years to provide a source of funds to pay the related debt service.

Table 17-1: Greensboro Bond Referendums (\$000's) History, 1985-2000						
Category	1985	1988	1990	1996	2000	Total
Transportation	7,500	75,000	0	0	73,750	156,250
Parks & Recreation	10,850	0	0	0	34,200	45,050
Coliseum	0	0	25,670	0	0	25,670
Libraries	0	0	16,055	0	5,020	21,075
Public Safety	795	0	0	25,000	16,630	42,425
Housing	2,900	4,000	2,000	9,000	0	17,900
Neighborhood Redevelopment	0	6,000	7,130	1,000	2,800	16,930
Cultural Facilities	7,600	0	0	0	3,500	11,100
Public Facilities	1,500	0	0	0	0	1,500
Total	31,145	85,000	50,855	35,000	135,900	337,900

Source: Greensboro Finance Dept., 2000. Of total debt approved prior to 2000, \$2.5 million remains unissued for communications systems and fire stations.

Table 17-2: City of Greensboro CIP Bond Referendum, Approved November 2000		
Individual Bond Items	Individual Item Cost	Subtotal
Transportation - Streets		
Roadway Improvements	\$51,500,000	
Sidewalks/ Bikeways	\$5,300,000	
Resurfacing/ Signal Replacement	\$6,000,000	
Streetscape Projects	\$8,950,000	\$71,750,000
Transportation		
Transit	\$2,000,000	
Housing & Community Development		
Neighborhood Development	\$2,800,000	
Parks & Recreation Facilities		
Barber Park Recreation Center	\$8,800,000	
Barber Park Pavilion Roof Replacement	\$4,200,000	
Southwest GSO Recreation Center	\$4,800,000	
Keeley Park	\$6,590,000	
HVAC Installation in Recreation Centers	\$2,922,000	
Parks ADA Compliance for Restrooms	\$2,257,000	
Other	\$4,631,000	\$34,200,000
Library Facilities		
Benchmark Square Branch Relocation	\$2,467,260	
Guilford College Branch Relocation	\$2,552,740	\$5,020,000
Fire Stations		
Fire Station 11 Replacement	\$2,250,000	
Lake Jeanette Fire Station	\$2,500,000	
Horsepen Creek Road Fire Station	\$2,300,000	
Grandover Fire Station	\$2,500,000	\$9,550,000
Police - General		
Law Enforcement/ General Facilities	\$7,080,000	
Other Facilities		
Natural Science Center	\$3,500,000	
Grand Total	\$135,900,000	

Source: Greensboro Budget & Finance Dept., 2000.

Table 17-3: City of Greensboro Capital Improvements Program Summary FY 2001-2007

Expenditures	FY 01-02	FY 02-03	FY 03-04	FY 04-05	FY 05-06	FY 06-07	TOTAL
Public Safety	2,075,000	7,582,490	3,355,000	2,430,000	10,195,000	1,475,000	27,112,490
Transportation	63,034,885	32,932,345	14,377,000	11,275,000	11,270,000	14,020,000	146,909,230
Economic & Community Development	8,586,775	8,200,000	6,350,000	4,235,850	2,850,000	2,700,000	32,922,625
Environmental Protection	44,256,745	30,476,250	22,052,290	22,305,645	15,282,180	5,450,000	139,823,110
Culture & Recreation	9,450,385	11,424,815	12,501,540	9,080,000	5,208,560	2,933,500	50,598,800
General Government	2,000,000	6,237,500	2,912,500	500,000	500,000	0	12,150,000
TOTAL	129,403,790	96,853,400	61,548,330	49,826,495	45,305,740	26,578,500	409,516,255
Funding Sources							
General Fund	2,662,625	2,220,000	2,940,000	2,785,000	2,804,800	2,105,000	15,517,425
Enterprise Funds	24,255,835	11,100,595	9,180,000	7,510,000	5,950,000	5,950,000	63,946,430
Street & Sidewalk Funds	1,440,000	1,440,000	1,540,000	1,200,000	1,200,000	1,200,000	8,020,000
Powell Bill/ State Funds	6,040,000	7,225,000	5,795,000	6,555,000	5,540,000	5,470,000	36,625,000
Authorized Bonds	25,049,385	34,688,805	28,251,040	20,965,000	12,614,760	20,163,500	141,732,490
Unauthorized Bonds	0	0	1,850,000	1,860,000	9,704,000	1,000,000	14,414,000
Revenue Bonds	21,999,000	23,956,000	13,472,290	15,295,645	9,832,180	0	84,555,115
Grants/ Other	20,051,945	11,568,000	6,000,000	3,235,850	1,850,000	1,700,000	44,405,795
TOTAL	101,498,790	92,198,400	69,028,330	59,406,495	49,495,740	37,588,500	409,216,255

Source: City of Greensboro Capital Improvements Program, 2001-2007, Greensboro Budget & Finance Dept., 2001.

Chapter 18

Glossary

SUBJECT DEFINITIONS for the Greensboro City Data Book

Adjusted Capacity –Number of students assigned according to the Board adopted Redistricting Plan

Age – The age classification is based on the age of the person in complete years as of April 1, 2000. The age of the person usually was derived from their date of birth information.

Aircraft Operations – Airport operational functions involving commercial air carriers, air taxi service, general aviation services, and military.

Alkalinity – A measure of the buffering capacity of surface water, or the ability of water to cushion its components, which is important to water quality. It is the capacity of the water to accept positive hydrogen ions such as carbonate, hydroxide, bicarbonate and other bases which tend to elevate the water's pH to a level above 4.5.

Ambient – The background condition of streams during dry weather.

Apportionment – The number of representatives that a state is entitled to in the US House of Representatives based on the decennial census.

Average – see "Mean."

Average Family Size – A measure obtained by dividing the number of people in families by the total number of families (or family householders).

Average Household Size – A measure obtained by dividing the number of people in households by the total number of households (or householders).

Average Household Size of Owner-Occupied Units – A measure obtained by dividing the number of people living in owner-occupied housing units by the number of owner-occupied housing units.

Average Household Size of Renter-Occupied Units – A measure obtained by dividing the number of people living in renter-occupied housing units by the number of renter-occupied housing units.

BEA – Bureau of Economic Analysis.

Biochemical Oxygen Demand – A measurement of the oxygen-demanding materials in the water body; an indicator of organic pollution typically associated with sewage, industrial, and animal-farming wastes.

Block Group – A combination of census blocks that is a statistical subdivision of a census tract.

Geographic block groups never cross census tracts but may cross the boundaries of county subdivisions, places, urbanized areas, voting districts, and so forth. Tabulation block groups may be split to present data for every unique combination of county subdivision, place, and the like.

BLS – Bureau of Labor Statistics.

BMP – Best Management Practices

BOD – Biochemical Oxygen Demand.

Books Per Capita – Ratio depicting relationship of collection size (adult, children's books and materials) to service population

Boundary – A line identifying the extent of a geographic entity, such as, a block, census tract, county, or place. The legal boundaries the Census Bureau recognizes for a census are those in place on the first day of the census year.

BUA – Built Upon Area.

Building – Usually a separate structure that has open space on all sides. Townhouses are separate buildings. Some buildings can be used both as a residence and a business, as in the case of an apartment located above a grocery store.

Built Upon Area – That portion of a development project that is covered by impervious or partially impervious cover including buildings, pavement, gravel areas (e.g. Roads, parking lots, paths), recreation facilities (e.g. tennis courts), etc. Wooden slatted decks and the water area of a swimming pool are not considered BUA.

Bureau of Economic Analysis – Department of Commerce. The BEA's goal is to provide a clear picture of the US economy by preparing, developing, and interpreting the national income and product accounts (summarized by the gross domestic product) as well as aggregate measures of interna-

tional, regional, and state economic activity.

Bureau of Labor Statistics – Department of Labor. The BLS is the principal fact-finding agency for the federal government in the broad field of labor economics and statistics.

Candidate (State Designation) – Species which are very rare in NC, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction (& sometimes also by direct exploitation or disease). These species are also either rare throughout their ranges (fewer than 100 populations total) or separated in NC from a main range in a different part of the country or world. Also included are species which may have 20-50 populations in NC, but fewer than 50 populations rangewide. These are species which have the preponderance of their distribution in NC & whose fate depends largely on their conservation here. Also included are many species known to have once occurred in NC but with no known extant occurrences in the state (historical or extirpated species); if these species are relocated in the state, they are likely to be listed as Endangered or Threatened. If present land use trends continue, candidate species are likely to merit listing as Endangered or Threatened.

Career Express Ridership – Direct route service nonstop shuttle service to the Airpark Area from 6am to 11:30 pm using 1 bus and 3 vans

Cargo – Total tonnage in pounds resulting from US mail, express and freight Operations.

Census – A complete enumeration of a population or the business and commercial establishments, farms, or governments in an area. See decennial census.

Census Bureau – Department of Commerce. The Census Bureau is the country's preeminent statistical collection and dissemination agency. It publishes a wide variety of statistical data about people and the economy of the nation. The Census Bureau conducts approximately 200 annual surveys and conducts the decennial census of the US population and the quinquennial census of industry.

Census Map – Any map produced by the Census Bureau. A census map displays geographic entities used in a Census Bureau census or survey for which the Census Bureau tabulates data.

Chemical Oxygen Demand – Refers to the amount of oxygen utilized during oxidization (the breakdown of materials using oxygen). The chemical oxygen demand refers to both the organic matter AND the inorganic oxidizing matter found in bottom sediments of a stream. It is also referred to as the oxygen consumed.

Child – A child includes a son or daughter by birth, a stepchild, or an adopted child of the householder, regardless of the child's age or marital status.

Circulation Per Capita – Ratio depicting the relationship of circulation of books and materials with the service population.

City – A type of incorporated place in all states and the District of Columbia. In agreement with the State of Hawaii, however, the Census Bureau does not recognize the city of Honolulu for presentation of decennial census data. In Virginia, all cities are not part of any county, and the Census Bureau treats them as county equivalents as well as places for purposes of data presentation; there also is one such independent city in each of three states: Maryland, Missouri, and Nevada. In 20 states, some or all cities are not part of any minor civil division, and the Census Bureau treats them as county subdivisions for purposes of data presentation. See incorporated place.

Class C – all other streams in Greensboro (North & South Buffalo Creek, etc.) are classified as waters suitable for aquatic life propagation and survival, fishing, wildlife, secondary recreation (incidental contact), and agricultural uses.

Class WS-IV – all streams that flow toward Greensboro's drinking water lakes, as well as the lakes themselves (Higgins, Brandt, and Townsend) are classified as WS-IV. WS-IV lakes and streams are waters protected as water supplies that are generally in moderately to highly developed watersheds. Some limited point source and wastewater discharges are permitted according to State regulatory requirements and local non-point source and stormwater discharge programs are required. Suitable for all Class C uses.

COD – Chemical Oxygen Demand.

Comer (School Development Process) – Many Guilford County Schools have adopted the School Development Process. The *mission* of the Process is to use child development and relationship theories and principles to improve the academic achievement and psychological functioning of students in a significant number of schools.

The purpose of the School Development Process (SDP) is to provide a systems approach to management using the talents, interests and abilities of all stakeholders as collaborative decision makers in developing policies, procedures, programs and strategies that contribute to high academic achievement and positive school climate.

The SDP *Program Goals and Objectives* are to promote parental involvement and shared decision-making, to enhance the quality of internal and external student and staff services, and to create the social and psychological climate needed to promote learning.

Commercial Solid Waste – All types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes.

Conductivity – A measure of the ability of a body of water to carry an electrical current. This ability is dependent on the presence of dissolved ions, their total concentration, mobility, valence, and relative concentrations in the water temperature. In general, as the pollutant load to natural water increases, the concentration of dissolved ions increases. High conductivity values generally indicate high levels of pollution.

Conservation Easement – Recorded restriction on property that limits the use of that property.

Cost of Living Index – Economic measure used by the American Chamber Research Association to monitor selected items including grocery, housing, utilities, transportation, health care miscellaneous goods and services. A composite index using 100 as the standard is computed for participating communities.

County – A type of governmental unit that is the primary legal subdivision of every state except Alaska and Louisiana (boroughs and parishes, respectively). The Island Areas also do not have counties as their primary legal subdivision (county is a minor civil division in American Samoa).

Decennial Census – The census of population and housing, taken in each year ending in zero. Article 1, section 2 of the Constitution requires that a census be taken every 10 years for the purpose of apportioning the US House of Representatives. The first census of population was taken in 1790. The Census Bureau first conducted the census of housing in 1940.

Demand Response – paratransit services that require reservations, i.e. SCAT
Career Express and Lateline.

Department of Commerce – US Government. The Department of Commerce promotes job creation, economic growth, sustainable development, and improved living standards for all Americans. The Department of Commerce includes the Bureau of Export Administration, Economic Development Administration, International Trade Administration, Patent and Trademark Office, Minority Business Development Agency, National Telecommunications and Information Administration, Economics and Statistics Administration, Bureau of the Census, Bureau of Economic Analysis, Technology Administration, National Institute of Standards and Technology, National Technical Information Service, and the National Oceanic and Atmospheric Administration (NOAA) and the various agencies NOAA oversees.

Dissolved Oxygen – A measure of the concentration of dissolved oxygen present in a body of water. DO is an important measure of water quality and the ability of surface waters to support a well-balanced aquatic ecosystem.

Diversion Rate – Total tonnage diverted from the landfill divided by the total tonnage of solid waste generated.

DO – Dissolved Oxygen.

Duplicated Dropouts – The duplicated count of dropouts includes all students who fit the definition of a dropout for the reporting year, regardless of whether or not they had also been reported as dropouts in previous years. These rates also include students who withdrew from school to pursue community college GED or adult high school diploma programs.

Educational Attainment – Educational attainment data are tabulated for people 25 years old and over. Respondents are classified according to the highest degree or the highest level of school completed.

Employment – Number of persons in the civilian labor force distinguished by place of work and place of residence.

Endangered (Federal Designation) – In danger of extinction throughout all or a significant portion of its range.

Endangered (State Designation) – Any species or higher classification of plant or animal whose continued existence as a viable component of the State's flora or fauna is determined to be in jeopardy.

Existing Capacity – Number of students by classroom using the 1995 State Bond Study Standards. Standards by grade level are Elementry-740 based upon 24 students per classroom, Middle-878 based upon 26 students per classroom and High School-1200-1800 based upon 20 students per teaching station.

Family Household (Family) – A family includes a householder and one or more people living in the same household who are related to the householder by birth, marriage, or adoption. All people in a household who are related to the householder are regarded as members of his or her family. A family household may contain people not related to the householder, but those people are not included as part of the householder's family in census tabulations. Thus, the number of family households is equal to the number of families, but family households may include more members than do families. A household can contain only one family for purposes of census tabulations. Not all households contain families since a household may comprise a group of unrelated people or one person living alone.

Fecal Coliform – A type of bacteria which indicates contamination from warm-blooded animals, uncontrolled sewage, farm operations, and urban runoff.

Female Householder, No Husband Present – A female maintaining a household with no husband of the householder present.

Fixed Route – 14 established routes within the city of Greensboro including the GTCC/Jamestown route.

Flex Route – designated service for selected trip functions using vans.

Four Tiers – A series of four concentric circles drawn a certain measured distance and parallel to an intake or the pool elevation of a particular reservoir and Tier number four is the farthest.

Fund Categories – General, Special, Enterprise-Financial accounting categories used to track specific funding allocations. Specific sources are provided in the Financial Conditions chapter.

Gross Retail Sales – Total taxable and nontaxable sales reported on sales and use tax returns filed by merchants.

Ground Water – Water below the land surface in a zone of saturation.

Group Quarters Population – The group quarters population includes all people not living in households. Two general categories of people in group quarters are recognized: 1) the institutionalized population which includes people under formally authorized, supervised care or custody in institutions at the time of enumeration (such as correctional institutions, nursing homes, and juvenile institutions) and 2) the noninstitutionalized population which includes all people who live in group quarters other than institutions (such as college dormitories, military quarters, and group homes).

Hardness – Measurement of the amount of lime in water.

Hispanic or Latino – People who identify with the terms "Hispanic" or "Latino" are those who classify themselves in one of the specific Hispanic or Latino categories listed on the questionnaire—"Mexican," "Puerto Rican," or "Cuban"—as well as those who indicate that they are "other Spanish, Hispanic, or Latino." Origin can be viewed as the heritage, nationality group, lineage, or country of birth of the person or the person's

parents or ancestors before their arrival in the United States. People who identify their origin as Spanish, Hispanic, or Latino may be of any race.

Historic District – See local or national register.

Homeowner Vacancy Rate – The homeowner vacancy rate is the proportion of the homeowner housing inventory which is vacant for sale. It is computed by dividing the number of vacant units for sale only by the sum of owner-occupied units and vacant units that are for sale only, and then multiplying by 100. (For more information, see "Vacant Housing Unit")

Household – A household includes all of the people who occupy a housing unit. People not living in households are classified as living in group quarters.

Household Waste – Any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

Householder – In most cases, the householder is the person, or one of the people, in whose name the home is owned, being bought, or rented and who is listed as Person 1 on the census questionnaire. If there is no such person in the household, any adult household member 15 years old and over could be designated as the householder (i.e., Person 1).

Housing Unit – A housing unit may be a house, an apartment, a mobile home, a group of rooms, or a single room that is occupied (or if vacant, is intended for occupancy) as separate living quarters. Separate living quarters are those in which the occupants live separately from any other individuals in the building and which have direct access from outside the building or through a common hall.

Incorporated Place – A type of governmental unit incorporated under state law as a city, town (except the New England states, New York, and Wisconsin), borough (except in Alaska and New York), or village and having legally prescribed limits, powers, and functions.

Index Crimes – Part I offenses (Crime Index) consist of the 8 most serious criminal offenses. These offenses include Homicide, Forcible Rape, Robbery, Aggravated Assault, Burglary, Larceny, Auto Theft and Arson. Each reported crime is classified as to the nature of the offense based on definitions of the Part I offenses as determined by the United States Department of Justice, Federal Bureau of Investigation. This practice ensures that offenses are classified and counted correctly across the country.

Indirect Potable Reuse of Treated Effluent – The recovery of highly treated wastewater to discharge to a water supply reservoir or aquifer for ultimate reuse as a potable water supply after a storage period

Institutionalized Population – The institutionalized population includes people under formally authorized, supervised care or custody in institutions at the time of enumeration. (For more information, see "Group Quarters Population.")

Intake – The opening of the pipe through which water is taken from the lake or river for transportation to the water treatment plant for processing into drinking water.

Interbasin Transfer – Transfer of water from major drainage basin to another, as in taking water for city supply from the Deep River Basin, using it within the city, and discharging the treated or reclaimed wastewater to the Haw River Basin.

Interpolation – Interpolation frequently is used in calculating medians based on interval data and in approximating standard errors from tables. Linear interpolation is used to estimate values of a function between two known values. This is the form of interpolation used to calculate median age.

ISO Rating – The National Insurance Services Office (ISO) rates communities and their available resources for responding to and controlling fires. Typical rating factors include response time, staffing and equipment availability, building code requirements and inspection procedure. The ISO uses a scale of 1 (best rating) to 10 (no protection available) to evaluate communities. The ratings are used by the North Carolina and other rating bureaus to establish fire insurance.

Labor Force – Total number of employed persons employed and unemployed.

Landfilled – Amount of solid waste deposited in the White Street Landfill Facility by private and public haulers.

Lateline Ridership – Evening route service that extends from 7:30pm M-F to midnight and Sat. 7m to 10pm Program was discontinued September 2000. Extended Evening Service is now provided.

Latino – See Hispanic.

Legal Service Area – Population of the service area designated by the respective Government, i.e. Greensboro, Guilford County excluding High Point.

Level of Service – based on average through vehicle speed for an entire arterial section, including stops at traffic signals. Factors affecting arterial level of service include the number of travel lanes, signal progression/timing, turn lanes at intersections, and the number of traffic signals. The following general statements can be made regarding arterial level of service.

Level of Service A = Average travel speeds, including stop delays at signalized intersections, are 90% of the free flow speed (speed limit). Vehicles are seldom impeded and delay at signalized intersections is minimal.

Level of Service B = Average travel speeds, including stop delays at signalized intersections, are 70% of the free flow speed (speed limit). The ability to maneuver in the traffic stream is only slightly restricted and delays are not bothersome. Average delay of 10 to 20 seconds per vehicle.

Level of Service C = Average travel speeds, including stop delays at signalized intersections, are 50% of the free flow speed (speed limit). Ability to maneuver mid-lock becomes more restrictive; however, traffic conditions are stable. Average delay of 20 to 35 seconds per vehicle.

Level of Service D = Average travel speeds, including stop delays at signalized intersections, are 40% of the free flow speed (speed limit). Small increases in traffic flow cause unstable conditions. Delays are noted at signalized intersections. Average delay of 35 to 55 seconds per vehicle.

Level of Service E = Average travel speeds, including stop delays at signalized intersections, are 33% of the free flow speed (speed limit). Significant delays are experienced. Average delay of 55 to 80 seconds per vehicle.

Level of Service F = Average travel speeds, including stop delays at signalized intersections, are less than 25% of the free flow speed (speed limit). Extremely slow travel speeds and extreme delay. Average delay of >80 seconds per vehicle.

Living Quarters – A dwelling where people live, stay, or could live. Living quarters are classified as housing units or group quarters. They are usually found in structures intended for residential use but also may be found in structures intended for nonresidential use as well as tents, vans, shelters for people without housing, dormitories, barracks, and so forth.

Local Historic District -- overlay-zoning districts where zoning requirements include the rule that a Certificate of Appropriateness must be obtained for any exterior changes. Exterior changes must adhere to design guidelines.

Managed Waste (not Landfilled) – Amount of solid waste classified as recycled, yardwaste, and white goods.

Married-Couple Family – A family in which the householder and his or her spouse are enumerated as members of the same household.

Mean – This measure represents an arithmetic average of a set of values. It is derived by dividing the sum (or aggregate) of a group of numerical items by the total number of items in that group. For example, average family size is obtained by dividing the number of people in families by the total number of families (or family householders). (Additional information on means and aggregates is included in the separate explanations of many of the population and housing subjects.)

Mean (Average) Income – Mean (average) income is the amount obtained by dividing the total aggregate income of a group by the number of units in that group. The means for households, families, and unrelated individuals are based on all households, families, and unrelated individuals, respectively. The means (averages) for people are based on people 15 years old and over with income.

Median – This measure represents the middle value (if n is odd) or the average of the two middle values (if n is even) in an ordered list of n data values. The median divides the total frequency distribution into two equal parts: one-half of the cases falling below the median and one-half above the median. (See also "Interpolation.")

Median Age – The median divides the age distribution into two equal parts, one-half of the cases falling below the median age and one-half above the median. This measure is rounded to the nearest tenth.

Median Income – Median income is the amount which divides the income distribution into two equal groups, half having incomes above the median, half having incomes below the median. The medians for households, families, and unrelated individuals are based on all households, families, and unrelated individuals, respectively. The medians for people are based on people 15 years old and over with income.

Metropolitan Statistical Area – These are designated by the federal Office of Management and Budget for use by federal statistical agencies. These geographically based entities are a core area with a large population nucleus plus adjacent communities with a high degree of economic and social integration with the core. An MSA consists of one or more counties.

Migration – Question on the long (sample) form asking for residence (state and county) five years ago.

Mixed Use Planned Development – The Conditional Use Planned Development Mixed District is intended to accommodate residential, commercial, and light industrial uses developed on large tracts in accordance with a Unified Development Plan.

Mode Share – Percentage of work trips completed by public transit, carpool, bike, pedestrian or separate automobile.

MSA – Metropolitan Statistical Area.

MSW – Municipal Solid Waste.

Multifamily Units – Attached residential structures in various categories, condominiums, townhouse, apartments and duplexes.

National Register Historic District – listed on the National Register of Historic Places. National Register listing places no restrictions on private property but it does make owners of historic properties eligible for federal and state rehabilitation tax credits. College Hill, Fisher Park, and Charles B. Aycock are both local and National Register districts. However, local and National Register boundaries are different, and the official name of the National Register district in the Charles B. Aycock neighborhood is the Summit Avenue Historic District.

Natural Increase – Vital statistic used to measure the difference between births and deaths for a prescribed time period. The result can be positive or negative.

NCESC – North Carolina Employment Security Commission.

Net Absorption – Amount of office, industrial or retail square footage leased in a designated time period.

Net Migration – Total migration, both in to and out of a place.

Nitrate – See Nutrients.

Nitrite – See Nutrients.

Nitrogen – See Nutrients.

Nonfamily Household – A householder living alone or with nonrelatives only.

Noninstitutionalized Population – All people who live in group quarters other than institutions. Also included are staff residing at institutional group quarters. (For more information, see "Group Quarters Population.")

Nonrelative – Any household member who is not related to the householder by birth, marriage, or adoption, including foster children.

Nutrients – Nitrogen and phosphorus are chemicals that are needed by plants and animals for growth. Excessive amounts of nutrients can lead to degradation of water quality by promoting excessive growth, accumulation, and subsequent decay of plants, especially algae. These nutrients result from runoff from fertilizer use, leaching from septic tanks and sewage, and the erosion of natural deposits. Some nutrients can be toxic to animals at high concentrations. Parameters measured by SWS include nitrate, nitrite, total kjeldahl nitrogen and total phosphorus.

Occupied Housing Unit – A housing unit is classified as occupied if it is the usual place of resi-

dence of the person or group of people living in it at the time of enumeration, or if the occupants are only temporarily absent; that is, away on vacation or business.

Open Space – undisturbed or undeveloped land whose functions and benefits range from environmental to economic, from conservation to recreation, from corridors for wildlife to paths for people, from buffers to connectors, from quality of water to quality of life, and from soothing the eye to soothing the soul.

Operating Dollars Per Capita – Ratio depicting the relationship of operating costs related to the service population.

Other Relative – Any household member related to the householder by birth, marriage, or adoption, but not included specifically in another relationship category.

Overlay Districts – The outer boundary of a geographical area that contains several properties that share a common physical feature and a special set of land use regulations. In this particular case, the overlay district refers to the area surrounding a reservoir that includes the Watershed Critical Area (WCA) and the General Watershed Area (GWA).

Own Child – A child under 18 years old who is a son or daughter by birth, marriage (a stepchild), or adoption. For 100-percent tabulations, own children consist of all sons/daughters of householders who are under 18 years of age. For sample data, own children consist of sons/daughters of householders who are under 18 years of age and who have never been married, therefore, numbers of own children of householders

may be different in these two tabulations.

Owner-Occupied Housing Unit – A housing unit is owner-occupied if the owner or co-owner lives in the unit even if it is mortgaged or not fully paid for.

Ozone Exceedances – the number of occurrences above the state standard.

Per Capita Income – Per capita income is the average income computed for every man, woman, and child in a particular group. The Census Bureau derived per capita income by dividing the total income of a particular group by the total population in that group (excluding patients or inmates in institutional quarters).

Percentage – This measure is calculated by taking the number of items in a group possessing a characteristic of interest and dividing by the total number of items in that group, and then multiplying by 100.

Percentage of BUA – The total amount of built upon area to be constructed within the boundary of a lot divided by the total size of that lot.

Persons/ Gross Acre – Population density ratio indicating total persons for each acre that includes residential and non-residential land uses

pH – A scale based on the hydrogen ion concentration by which water and other substances are measured to determine if they are acidic, neutral, or alkaline (basic). The midpoint of the scale is pH 7.0 or neutral. Readings from 0.0 to 7.0 are acidic and the lower the pH value the more strongly alkaline (basic) the material. Rapid increases in pH can cause ammonia concentrations to increase to levels that are toxic to aquatic organisms.

Pool Elevation – The normal water level of a particular reservoir.

Poverty Rate – Percentage of persons earning less than the poverty thresholds (income by family size) established by the US Census.

Protected Open Space – as defined by the Guilford County Open Space Report: the property must be owned by a government entity or local land conservancy; undeveloped open space or recreationally developed park land; covered by a recorded conservation easement.

Race – The concept of race as used by the Census Bureau reflects self-identification by people according to the race or races with which they most closely identify. These categories are sociopolitical constructs and should not be interpreted as being scientific or anthropological in nature. Furthermore, the race categories include both racial and national-origin groups. The racial classifications used by the Census Bureau adhere to the October 30, 1997, *Federal Register Notice* entitled, "Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity" issued by the Office of

Management and Budget (OMB). These standards govern the categories used to collect and present federal data on race and ethnicity. The OMB requires five minimum categories (American Indian and Alaska Native, Asian, Black or African American, Native Hawaiian and Other Pacific Islander, and White) for race. The race categories are described below with a sixth category, "Some other race," added with OMB Census 2000 approval. In addition to the five race groups, the OMB also states that respondents should be offered the option of selecting one or more races.

If an individual could not provide a race response, the race or races of the householder or other household members were assigned by the computer using specific rules of precedence of household relationship. For example, if race was missing for a natural-born child in the household, then either the race or races of the householder, another natural-born child, or the spouse of the householder were assigned. If race was not

reported for anyone in the household, the race or races of a householder in a previously processed household were assigned.

White — A person having origins in any of the original peoples of Europe, the Middle East, or North Africa. It includes people who indicate their race as "White" or report entries such as Irish, German, Italian, Lebanese, Near Easterner, Arab, or Polish.

Black or African American — A person having origins in any of the black racial groups of Africa. It includes people who indicate their race as "Black, African Am., or Negro," or provide written entries such as African American, Afro American, Kenyan, Nigerian, or Haitian.

American Indian and Alaska Native — A person having origins in any of the original peoples of North and South America (including Central America), and who maintain tribal affiliation or community attachment. It includes people who classify themselves as described below.

American Indian — Includes people who indicate their race as "American Indian," entered the name of an Indian tribe, or report such entries as Canadian Indian, French-American Indian, or Spanish-American Indian.

Alaska Native — Includes written responses of Eskimos, Aleuts, and Alaska Indians as well as entries such as Arctic Slope, Inupiat, Yupik, Alutiiq, Egegik, and Pribilovian. The Alaska tribes are the Alaskan Athabaskan, Tlingit, and Haida. The information for Census 2000 is derived from the American Indian Detailed Tribal Classification List for the 1990 census and was expanded to list the individual Alaska Native Villages when provided as a written response for race.

Asian — A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam. It includes "Asian Indian," "Chinese," "Filipino," "Korean," "Japanese," "Vietnamese," and "Other Asian."

Asian Indian — Includes people who indicate their race as "Asian Indian" or identify themselves as Bengalese, Bharat, Dravidian, East Indian, or Goanese.

Chinese — Includes people who indicate their race as "Chinese" or who identify themselves as Cantonese, or Chinese American. In some census tabulations, written entries of Taiwanese are included with Chinese while in others they are shown separately.

Filipino — Includes people who indicate their race as "Filipino" or who report entries such as Philipino, Philipine, or Filipino American.

Japanese — Includes people who indicate their race as "Japanese" or who report entries such as Nipponese or Japanese American.

Korean — Includes people who indicate their race as "Korean" or who provide a response of Korean American.

Vietnamese — Includes people who indicate their race as "Vietnamese" or who provide a response of Vietnamese American.

Cambodian — Includes people who provide a response such as Cambodian or Cambodia.

Hmong — Includes people who provide a response such as Hmong, Laohmong, or Mong.

Laotian — Includes people who provide a response such as Laotian, Laos, or Lao.

Thai — Includes people who provide a response such as Thai, Thailand, or Siamese.

Other Asian — Includes people who provide a response of Bangladeshi, Burmese, Indonesian, Paki-

stani, or Sri Lankan.

Native Hawaiian and Other Pacific Islander — A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands. It includes people who indicate their race as "Native Hawaiian," "Guamanian or Chamorro," "Samoan," and "Other Pacific Islander."

Native Hawaiian — Includes people who indicate their race as "Native Hawaiian" or who identify themselves as "Part Hawaiian" or "Hawaiian."

Guamanian or Chamorro — Includes people who indicate their race as such, including written entries of Chamorro or Guam.

Samoan — Includes people who indicate their race as "Samoan" or who identified themselves as American Samoan or Western Samoan.

Other Pacific Islander — Includes people who provided a write-in response of a Pacific Islander group such as Tahitian, Northern Mariana Islander, Palauan, Fijian, or a cultural group such as Melanesian, Micronesian, or Polynesian.

Some Other Race — Includes all other responses not included in the "White," "Black or African American," "American Indian and Alaska Native," "Asian," and the "Native Hawaiian and Other Pacific Islander" race categories described above. Respondents providing write-in entries such as multiracial, mixed, interracial, or a Hispanic/Latino group (for example, Mexican, Puerto Rican, or Cuban) in the "Some other race" category are included in this category.

Two or More Races — People may have chosen to provide two or more races either by checking two or more race response check boxes, by providing multiple write-in responses, or by some combination of check boxes and write-in responses. The race response categories shown on the questionnaire are collapsed into the five minimum race groups identified by the OMB, and the Census Bureau "Some other race" category. For data product purposes, "Two or more races" refers to combinations of two or more of the following race categories:

White

Black or African American

American Indian and Alaska Native

Asian

Native Hawaiian and Other Pacific Islander

Some other race

Coding of Write-In Entries — During 100-percent processing of Census 2000 questionnaires, subject matter specialists reviewed and coded written entries from four response categories on the race item — American Indian or Alaska Native, Other Asian, Other Pacific Islander, and Some other race — for which an area for a write-in response was provided. The Other Asian and Other Pacific Islander response categories shared the same write-in area on the questionnaire.

Rate — This is a measure of occurrences in a given period of time divided by the possible number of occurrences during that period. Rates are sometimes presented as percentages.

Reduction Rate — Comparison of the amount of solid waste generated in a given year to the solid waste generated in FY 91-92 (base year) which represents per capita per year.

Rentable Square Feet — Amount of commercial square footage available for lease

Rental Vacancy Rate — The proportion of the rental inventory which is vacant for rent. It is computed by dividing the number of vacant units for rent by the sum of the renter-occupied units and the number of vacant units for rent, and then multiplying by 100.

Renter-Occupied Housing Unit — All occupied housing units which are not owner occupied, whether they are rented for cash rent or occupied without payment of cash rent, are classified as renter occupied. Housing units in "continuing care" or life care facilities are included in the "rented for cash rent" category.

Residential Planned Development — The Conditional Use Planned Development District is intended to accommodate a variety of housing types developed on large tracts in accordance with a Unified Development Plan. The District also accommodates neighborhood business and office uses which primarily serve nearby residents

Residents/ Firefighter – How many residents there are in a community per firefighter.

Retail Sales Per Capita – Total gross retail sales divided by population

Rural – Territory, population, and housing units not classified as urban constitute rural. The urban and rural classifications cut across other hierarchies; for example, there are generally both urban and rural territories within both metropolitan and nonmetropolitan areas.

Sample Data – Detailed social, economic, and housing information collected on the long form from a selected portion of all housing units and people living in group quarters. The 1990 census sampled approximately 15 percent of the nation's population and 16 percent of its housing units.

School District – A geographic area delineated by state, county, or local officials designating the school(s) a particular locale must attend.

Seasonal, Recreational, or Occasional Use Housing Unit – Seasonal, recreational, or occasional use housing units include vacant units used or intended for use only in certain seasons, for weekends, or other occasional use throughout the year. Interval ownership units, sometimes called shared ownership or timesharing condominiums are included in this category. (For more information, see "Vacant Housing Unit.")

Seats Not Assigned – Seats from total school count as the result of programs with small class sizes, magnet schools with existing excess capacity and school locations in outlying or growth areas

Sex – Based on self-reporting of gender. Either male or female.

Significantly Rare (State Designation) – Species which are very rare in NC, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction (& sometimes also by direct exploitation or disease). These species are generally more common somewhere else in their ranges, occurring in NC peripherally to their main ranges, mostly in habitats which are unusual in NC. Also included are some species with 20-100 populations in NC, if they also have only 50-100 populations rangewide and are declining.

Solid Waste – any garbage, or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permit under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat.923).

Special Concern (State Designation) – Any species of plant or animal (wild or once-native) in NC which requires monitoring but which may be collected & sold under regulations adopted under the provisions of State Act.

Species of Concern (Federal Designation) – Further biological research & field study are needed to resolve the conservation status of these classifications. Many species of concern will be found not to warrant listing, either because they are not threatened or endangered or because they do not qualify as species under the definition in the [Endangered Species] Act. Others may be found to be in greater danger of extinction than some present candidate classifications. The [US Fish & Wildlife] Service is working with the States & other private & public interests to assess their need for protection under the Act. Such species are the pool from which future candidates (proposed for listing them as endangered or threatened species) for listing will be drawn.

Spouse – A person who is married to and living with the householder. This category includes people in formal marriages, as well as people in common-law marriages.

State – A type of governmental unit that is the primary legal subdivision of the US.

State Data Center – A state agency or university facility identified by the governor of each state and state equivalent to participate in our cooperative network for the dissemination of census data. A SDC also may provide demographic data to local agencies participating in our statistical areas programs and may assist the Census Bureau in the identification and delineation of statistical areas.

STF – Summary Tape File.

Stream Buffer – Natural or undeveloped area on stream banks that serve to protect stream quality;

mandated in some areas.

Summary Tape File – A series of census summary tabulations of 100 percent data and sample population and housing data available for public use on computer tape, CD-ROM, and the Internet. These will not be produced for Census 2000.

SWS – Stormwater Services.

Tag Ridership – Connector service to a main route, e.g. Holden Road and Brightwood Areas using vans. This service was discontinued in December 1998.

TDS – Total Dissolved Solids.

Temperature – The temperature of a body of water directly and indirectly impacts several physical, chemical, and biological components of water. For example, the dissolved oxygen concentration is inversely related to temperature. Runoff from urban areas tends to be warmer than runoff from undeveloped areas. Pavement and concrete in developed areas rapidly gain heat, warming runoff flowing over them. The stream channels in developed areas typically have fewer trees to shade the water, causing even more heating. These increased temperatures cause biological impairment in streams.

Tenure – All occupied housing units are classified as either owner occupied or renter occupied. A housing unit is owner occupied if the owner or co-owner lives in the unit even if it is mortgaged or not fully paid for. All occupied housing units which are not owner occupied, whether they are rented for cash rent or occupied without payment of cash rent, are classified as renter occupied.

Threatened (Federal Designation) – Likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Threatened (State Designation) – Any resident species of plant or animal which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

TIGER – Topologically Integrated Geographic Encoding and Referencing.

TIGER/Line File – The computer-readable extract of the TIGER® database that the Census Bureau makes available to the public. It contains data representing the roads, railroads, bodies of water, boundaries of legal and statistical entities, and other visible and nonvisible features, along with their attributes (names, address ranges, geographic codes, census feature class codes, and the like).

TKN – Total Kjeldahl Nitrogen.

Topologically Integrated Geographic Encoding and Referencing – A computer database that contains a digital representation of all census-required map features (streets, roads, rivers, railroads, lakes, and so forth), the related attributes for each, and the geographic identification codes for all entities used by the Census Bureau to tabulate data for the US, Puerto Rico, and Island Areas. The TIGER® database provides a resource for the production of maps, entity headers for tabulations, and automated assignment of addresses to a geographic location in a process known as "geocoding." TIGER® was preceded by the GBF/DIME (Geographic Base File/Dual Independent Map Encoding) files.

Total Dissolved Solids – Refers to the amount of particles in the water. Yet these are the filterable particles of matter. Though the water may appear to be clearer of debris, waters with high dissolved solids generally are of inferior quality. The pollutants have dissolved into smaller particles within the water.

Total Kjeldahl Nitrogen – See Nutrients.

Total Phosphorus – See Nutrients.

Total Suspended Solids – The weight of particles that are suspended in water accounts for the measurement of the total suspended solids. In the water column, solids reduce light penetration and can clog the gills of fish and invertebrates. TSS is often associated with toxic contaminants because organic materials and metals tend to bind to particles and stay suspended in the water column.

Town – A type of minor civil division in the New England states, New York, and Wisconsin and a type of incorporated place in 30 states and the Virgin Islands of the US. See incorporated place.

TP – Total Phosphorus.

Tract – Small, relatively permanent statistical subdivisions of counties delineated by local committees of census data users in accordance with Census Bureau guidelines for the purpose of collecting and presenting decennial census data. These neighborhoods contain between 1,000 and 8,000 people, typically approximately 1,700 housing units and 4,000 people. Tracts are designed to have homogeneous population characteristics, economic status, and living conditions at the time they are established. Census tract boundaries normally follow visible features but may follow governmental unit boundaries and other nonvisible features. There are more than 60,000 census tracts as of 2000.

Tract Number – Used to uniquely identify a census tract within a county.

Traffic Congestion – High delays at intersections and along travel ways resulting in unacceptable travel time to the motoring public.

TSS – Total Suspended Solids.

Turbidity – A measure of the cloudiness of water.

Unemployment Rate – Percentage of unemployed persons in civilian labor force.

United States – The 50 states and the District of Columbia.

Urban – All territory, population, and housing units in urbanized areas and in places of 2,500 or more persons outside urbanized areas. The urban and rural classifications cut across other hierarchies; for example, there are generally both urban and rural territories within both metropolitan and nonmetropolitan areas.

USGS – United States Geological Survey.

Vacant Housing Unit – A housing unit is vacant if no one is living in it at the time of enumeration, unless its occupants are only temporarily absent. Units temporarily occupied at the time of enumeration entirely by people who have a usual residence elsewhere are also classified as vacant. (For more information, see "Housing Unit.")

Volume/ Capacity Ratio – "Volume" is the number of vehicles that flow through an intersection or section of street in a certain amount of time, typically one hour.

"Capacity" is the theoretical maximum number of vehicles that can flow through an intersection or along a street section in a certain amount of time. Volume/Capacity ratio is the number of vehicles divided by the theoretical capacity. When a Volume/Capacity ratio reaches .9 then the intersection or roadway section is nearing its maximum vehicle carrying capacity and traffic congestion is eminent resulting in unacceptable travel delays to the motoring public.

Water Supply Watershed - The entire area contributing drainage (storm water flow) to the designated water supply reservoir or intake.

Water Quality Index (WQI) – Represents the "raw" water quality of streams and lakes, not processed drinking water quality. WQI represents the stream or lake water quality* on a scale of 0-100, with 0-20 representing Poor water quality; 20-40 Below Average; 40-60 Average; 60-80 Above Average; and 80-100 Good water quality. Both "Good" and "Above Average" water quality index ratings indicate those lakes or streams that fully support their State designated uses. "Average" water quality index ratings indicate the stream or lake will support its designated uses, but that its use could potentially be threatened by point and/or non-point source pollution. "Below Average" water quality index ratings indicate the lake or stream is partially supporting its designated use, and that its use is being threatened by point and/or non-point source pollution. "Poor" water quality index ratings indicate the stream or lake is not supporting its designated use.

Watershed – Area surrounding a creek, drainage area, or body of water. May be protected by ordinance.

Working Volume – Volume of water that can be pumped and used from the reservoirs for water production.

WQI – Water Quality Index.

WWTP – Wastewater treatment plant.

ZIP Code – ZIP codes are administrative units established by the US Postal Service for the distribution of mail. ZIP stands for zone improvement plan. It is a 5-, 7-, 9-, or 11-digit code assigned by the

US Postal Service to a street or portion of a street, a collection of streets, a business, or other establishment or structure, or a group of post office boxes to expedite the delivery of mail. The Census Bureau uses only 5-digit ZIP codes for the addresses and address ranges in most Census 2000 operations.